FORDHAM UNIVERSITY QUARTERLY

Thought

SUMMER 1959

Darwin Centennial Year

A Century of Darwinism in Biology — *Alexander Wolsky*

Darwin's Impact on Philosophy — *James Collins*

A Note on Theology and Evolution — *Robert W. Gleason*

Darwinism and America — *Vincent C. Hopkins*

Donne and the Meditative Tradition — *Louis L. Martz*

Feature Review — *Alfred DiLascia*

Other Book Reviews in Political Philosophy and History, Philosophy and Sociology, Literature and Education

VOL. XXXIV No. 133

A Review of Culture and Idea

BOOKS RECEIVED

American Association of Colleges for Teacher Education: *Teacher Education and Religion*, ed. by A. L. Sebaly (Pp. xiii, 202, $3.50).

Appleton-Century-Crofts: *An Introduction to Natural Theology*, by Maurice R. Holloway, S.J. (Pp. xxv, 492, $4.00).

Bruce Publishing Company: *International Law*, by Kurt Von Schuschnigg (Pp. xv, 512 $6.95); *The History of Philosophy*, by Johannes Hirschberger (Pp. viii, 752, $9.50); *Guide for Religious Administrators*, by Paul Hoffer, S.M. (Pp. viii, 171, $4.50); *"Stir Up The Fire,"* by Ludwig Weikl, S.J. (Pp. xvii, 233, $4.50).

Columbia University Press: *The Sacred Bridge*, by Eric Werner (Pp. xx, 618, $15.00); *Martin Van Buren and the Making of the Democratic Party*, by Robert V. Remini (Pp. viii, 271, $5.00); *The Eccentric Design*, by Marius Bewley (Pp. 327, $4.00); *Shared Government in Employment Security*, by Joseph M. Becker, S.J. (Pp. xiii, 501, $6.50).

Desclée Company: *Augustine, Philosopher of Freedom*, by Mary T. Clark, R.S.C.J. (Pp. 273, $4.50).

Dover Publications: *The Heart of Emerson's Journals*, ed. by Bliss Perry (Pp. ix, 357, $1.85); *Introduction to Symbolic Logic and Its Applications*, by Rudolf Carnap (Pp. xiv, 241, $1.85); *The Value of Science*, by Henri Poincaré (Pp. 147, $1.35).

E. P. Dutton & Co.: *Decade in Europe*, by Barrett McGurn (Pp. 288, $5.00).

Hanover House: *Moments in Orbit*, by Simon M. Théroude (Pp. 96, $3.00).

Harcourt, Brace & Co.: *One Great Society*, by Howard Mumford Jones (Pp. xiii, 241, $4.50); *A History of Western Morals*, by Crane Brinton (Pp. x, 502, $7.50); *The Warriors*, by J. Glenn Gray (Pp. x, 242, $3.95).

Harper & Brothers: *Earliest Christianity*, by Johannes Weiss (Vol. I, Pp. xxx, 395, $1.95; Vol. II, Pp. viii, 870, $2.25); *Between God and Man*, by Abraham J. Heschel (Pp. 279, $5.00); *Cosmos and History*, by Mircea Eliade (Pp. xvi, 176, $1.85); *The Journals of Kierkegaard*, ed. by Alexander Dru (Pp. 254, $1.45); *Genesis and Geology*, by Charles Coulston Gillispie (Pp. xiii, 306, $1.75); *The Kingdom of God in America*, by H. Richard Niebuhr (Pp. xvii, 215, $1.45).

Hawthorn Books: *What Is Life*, by René Biot, M.D. (Pp. 96, $2.95); *The Religion of Israel*, by Albert Gelin, P.SS. (Pp. 111, $2.95); *Why We Believe*, by Msgr. Leon Cristiani (Pp. 123, $2.95); *Religions of the Ancient East*, by Etienne Drioton and others (Pp. 164, $2.95).

Herder and Herder: *The Divine Office*, by Hildebrand Fleischmann (Pp. xxxi, 661, $5.25); *In Search of the Unknown God*, by Maurice Zundel (Pp. 194, $3.50); *Christ in the Theology of St. Paul*, by Lucien Cerfaux (Pp. 559, $7.80); *Prayers from Theology*, by Romano Guardini (Pp. 61, $1.50); *Pope John XXIII*, by Andrea Lazzarini (Pp. 145, $3.25); *The Jesuits*, by Peter Lippert (Pp. 130, $2.25).

Johns Hopkins Press: *Forerunners of Darwin: 1745-1859*, ed. by Bentley Glass and others (Pp. 471, $6.50); *The Subtler Language*, by Earl R. Wasserman (Pp. 361, $6.00).

Longmans, Green and Co.: *English Literature*, by A. C. Ward (Pp. xxi, 781, $6.75); *The Political Thought of John Henry Newman*, by Terence Kenny (Pp. x, 208, $5.00).

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A Review of Culture and Idea

CONTRIBUTORS

ALEXANDER WOLSKY, Ph.D. ("A Hundred Years of Darwinism in Biology"), Professor of Experimental Embryology in the Graduate School of Fordham University, formerly served as principal scientific officer for the United Nations Educational, Scientific and Cultural Organization, and was a Professor of Budapest University and Director of the Hungarian Biological Institute in Tihany. He is the author of some eighty research publications on developmental physiology and physiological genetics and is often quoted in textbooks on these subjects. A member of numerous learned societies here and abroad (Great Britain, Germany, India), he was a Rockefeller Fellow in 1935-36, and had research and travel grants from Sweden and the prewar government of Hungary.

JAMES COLLINS, Ph.D. ("Darwin's Impact on Philosophy") is Professor of Philosophy in the Graduate School of Saint Louis University and is one of the leading Catholic philosophers of the United States. He is a regular contributor to numerous learned journals and the author of several books. His most recent publications are *God in Modern Philosophy* and a revised and bibliographically updated edition of his book *The Existentialists: A Critical Study*.

ROBERT W. GLEASON, S.J., Ph.D., S.T.D. ("A Note on Theology and Evolution") is Chairman of the Departments of Theology and Religious Education at Fordham University. He has studied here and abroad and lectured widely at Congresses and Institutes in Spain and Italy. His articles in THOUGHT, *Irish Theological Quarterly, Australian Catholic Record, Clergy Review* of England and in most of the theological journals in English-speaking countries have been cited in many international reviews. He is the author of *The World to Come, Christ and the Christian,* and *The Indwelling God* (Fall publication).

VINCENT C. HOPKINS, S.J., Ph.D. ("Darwinism and America") is Associate Professor of American History in the Graduate School of Arts and Sciences, Lecturer in Jurisprudence in the School of Law, Fordham University, and Editor of *The Catholic Encyclopedia Supplement.* He is the author of *Dred Scott's Case* and of various articles in learned periodicals including THOUGHT ("The Supremacy of Law: Idea and Ideal," Spring 1959).

LOUIS L. MARTZ, Ph.D. ("Donne and the Meditative Tradition") is Chairman of the Department of English at Yale University. He is an outstanding scholar and author whose work in the Renaissance, the seventeenth century, and the twentieth century is very well known. The author of *The Poetry of Meditation,* his most recent publication is an essay on the poetry of Wallace Stevens that appears in the latest volume of *English Institute Studies.*

ALFRED DILASCIA ("Enciclopedia Filosofica") is Assistant Professor of Philosophy at Manhattan College and an Editor of *Cross Currents.* He has published articles in THOUGHT and in *Cross Currents,* and in September of 1958 read a paper before the XII International Congress of Philosophy held in Venice.

Thought

FORDHAM UNIVERSITY QUARTERLY

A Hundred Years of Darwinism in Biology ..... **Alexander Wolsky** 165

Darwin's Impact on Philosophy ..... **James Collins** 185

A Note on Theology and Evolution ..... **Robert W. Gleason** 249

Darwinism and America ..... **Vincent C. Hopkins** 259

Donne and the Meditative Tradition ..... **Louis L. Martz** 269

Feature Review 279

Enciclopedia Filosofica ..... **Alfred DiLascia**

Book Reviews 297

Political Philosophy and History 297

Philosophy and Sociology 307

Literature and Education 313

Books Received ..... Inside Covers

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Darwin's great and lasting contribution to biology was a concrete, realistic and penetrating theory which changed the idea of evolution from vague speculation into exact science.

A HUNDRED YEARS OF DARWINISM IN BIOLOGY

ALEXANDER WOLSKY

THIS YEAR THE LEARNED WORLD celebrates the centenary of the publication of Darwin's *Origin of Species,* in which the author explains his theory of evolution by means of natural selection.[1] A few years ago Sir James Gray, current professor of zoology at Darwin's Alma Mater, reviewing a book on evolution in a rather skeptical vein, predicted that on this anniversary "there may be some heart-searching" and "there will certainly be a great deal of discussion."[2] But up till now there has not been much of either. Most of the studies published thus far to commemorate the occasion are the customary

[1] Actually there are two dates to commemorate. The first is July 1, 1858, when the joint paper of Darwin and Wallace was read before the Linnean Society of London under the collective title "On the tendency of species to form varieties; and on the perpetuation of varieties and species by natural means of selection" (published in the *Journal of the Linnean Society,* 3 [Zoology]: 45, 1859). The second is November 24, 1859, when the first edition of the *Origin of Species* was published. The full title of the work is "The origin of species by means of natural selection, or the preservation of favoured races in the struggle for life." During Darwin's life six editions were published, the last in 1872. The numerous re-editions, among them a recent paperback edition (Mentor) with a special Introduction by Sir Julian Huxley, are mostly reprints of the sixth edition. The first edition, which differs considerably from the sixth, has been republished, with interesting remarks by C. Darlington, in 1951 by the Philosophical Library, New York. As this article goes into print, the University of Pennsylvania has announced the publication of a variorum text of the *Origin of Species,* compiled by Morse Peckham, showing the many substantial changes which the work has undergone during the six editions in Darwin's lifetime.

[2] "The case for natural selection," *Nature* (London), 173:227 (1954).

eulogies, emphasizing not only the great ingenuity of the author and the truly epoch-making significance of his theory, but also often conveying the impression that the problems of evolution are now largely solved on the basis which Darwin provided.[3] Although we shall attempt to show that this is not the case and that today, a hundred years after the publication of the *Origin of Species,* there are still some controversial points in modern evolutionary biology, it is by no means the intention of this article to raise a dissonant voice in the choir of centenary praise for Darwin and Darwinism.

It would indeed be out of line with the tradition of this University, and of Catholic universities in general, to spoil the celebration of this great centenary in the history of life sciences. When in 1909 Cambridge University celebrated the centenary of the birth of her great alumnus, which coincided with the fiftieth anniversary of the first publication of the *Origin of Species,* the Catholic University of Louvain sent a special delegate to the celebration, Canon Dorlodot, a distinguished paleontologist and at that time Chairman of the Department of Paleontology, who read a beautiful eulogy there. Today a professor of a Catholic university may repeat with equal emphasis what Louvain's representative said fifty years ago in his address about Darwin and his work: "Il ne paraît pas exagéré de dire, qu'en nous montrant la création plus grandiose encore qu'on ne l'avait soupçonné, Charles Darwin a complété l'oeuvre d'Isaac Newton; car pour tous ceux qui n'ont pas des oreilles pour ne point entendre, Darwin fut l'interprète du monde organique, comme Newton fut la voix des cieux, pour raconter la gloire du Créateur et pour proclamer que l'univers est un oeuvre vraiment digne de ses mains."[4]

Darwin's ingenious theory, as he presented it in the *Origin of Species* and elaborated it further in his later works, was indeed one

[3] For example, G. S. Carter, *A Hundred Years of Evolution* (London: Sidgwick & Jackson, 1958). A balanced, scholarly discussion was just published when this article went to press in "Commemoration of the Centennial of the Publication of *The Origin of Species* by Charles Darwin," *Proc. Am. Philos. Soc.,* 103:159 (1959). (Contributions by W. E. Le Gros Clark, I. M. Lerner, C. Stern, A. Müntzing, E. Mayr, G. L. Stebbins, Th. Dobzhansky, N. D. Newell, G. G. Simpson, and P. J. Darlington.)

[4] H. Dorlodot, *Darwinism and Catholic Thought,* Vol. I, The Origin of Species (New York: Benziger Brothers, 1922), Appendix V, pp. 176-177.—Recent appraisals of the Catholic position on Darwinism can be found in the articles of Fr. J. F. Ewing, S.J., "Evolution Re-evaluated," *Catholic Mind,* 55:120 (1957), and "Darwinism Today," *America,* 100:709 (1959).

of those great moments in human thinking which, like a flash in the night, suddenly illuminated new vistas for the seekers of truth in the science of life. It gave an explanation, well supported by factual arguments, of how one kind of living beings might have been transformed into another type, a process we call today — with a term Darwin never used — evolution. The basic idea of evolution is, of course, not Darwin's invention. The concept that the almost infinite variety of today's animals, plants and microorganisms (estimated conservatively to consist of over a million "good" species) did not always exist in the past history of the earth, but appeared gradually, in succession to some earlier, more primitive forms (or perhaps just one single form of life), as a result of transformations controlled by natural forces — this idea is in fact as old as human thinking. Since the idea of evolution has naturally not only biological but also profound philosophical implications, there were always philosophers with evolutionary views. Among the early Greek philosophers Anaximandros and Empedocles were pointed out repeatedly, though somewhat unscientifically, as "evolutionists" having ideas which somewhat resemble Darwin's theory,[5] while in the early Middle Ages the thoughts of St. Augustine on creation sound today surprisingly like the views of some modern geneticists on evolution.[6] In the more recent past evolutionary thinking played quite an important role before Darwin not only in philosophy but also in biological sciences, and the ideas of Buffon, Geoffroy St. Hilaire and Lamarck in France, of Darwin's grandfather, Erasmus Darwin in England, and of the *Naturphilosophen,* including Goethe, in Germany concerning "transformations," are well known. Darwin himself quotes in the Introduction to the later editions of the *Origin* ("An historical sketch")a number of biologists who a few years before him had expressed evolutionary views similar to his, and we know the curious coincidence and convergence of his ideas with those of Wallace.[7]

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[5] Cf. Erik Nordenskjöld, *Biologins historia* (Stockholm: Björck and Börjesson, 1925), Vol. I, pp. 13, 23. For a more positive view see the classic work of H. F. Osborn, *From the Greeks to Darwin* (New York: Macmillan Co., 1899).

[6] Cf. A. Wolsky, "Evolutionistische Gedankengänge in der christlichen Philosophie und in der heutigen Lebenskunde," *Bölcsel. Közlem.* (Proceedings of the St. Thomas Aquinas Soc. of Budapest), 9:18 (1943). (In Hungarian with summary in German.)

[7] A remarkable anticipator of Darwin was "discovered" recently by the distinguished anthropologist L. C. Eiseley, in the person of Edward Blyth, a British naturalist who,

What then was Darwin's great and lasting contribution to biological progress in general and to the science of evolution in particular? It was a concrete, realistic and penetrating theory to explain how evolution works, what factors transform one type into another. This explanation was so convincing and was supported by such a vast amount of novel observations and reflections that it turned the idea of evolution from a vague speculation into an exact science, the basic tenets of which became axioms for speculative thought in biology. The theory also had an entirely different reception from those given to previous attempts to "prove" and explain evolution (e.g., the theories of Buffon, Geoffroy St. Hilaire, and especially Lamarck), which had left the world of biologists rather cold. From the beginning Darwin's explanation was readily accepted and enthusiastically supported by a large number of his contemporaries. The theory, as the full title of the *Origin* concisely states it, explains evolution in the following way: There is a constant struggle among living beings for food, for shelter, for mating partner and for the other necessities of the continuity of life. In this struggle the forms that fit best into the existing environmental conditions will survive and those which are least fit will perish. The "raw material" of this natural selection is the ever-present "continuous," "fluctuating" variation of the individuals belonging to the same species. The proverbial fact that there are no two leaves exactly alike is another way of saying that variability is a fundamental characteristic of even the purest breed of living beings, and this is the basis of natural selection. From the many slight variants which every species has always in store — individuals of smaller or larger stature, shorter or longer extremities, coarser or finer integumental appendages, and so on — the struggle for life, like a plant breeder or animal fancier, selects and preserves

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twenty-four years before Darwin, developed a biological theory which is in all essential points identical with the theory of natural selection. But, curiously, Blyth used his theory —which, incidentally, was known to Darwin—as an argument in favor of the concept of the constancy of species. Cf. L. C. Eiseley, "Charles Darwin, Edward Blyth and the theory of natural selection," *Proc. Am. Philos. Soc.*, 103:94 (1959). For other anticipators of the principle of natural selection see C. Zirkle, "Natural Selection before the 'Origin of Species'," *Proc. Am. Philos. Soc.*, 84:71 (1941). See also *Forerunners of Darwin 1745-1859*, edited by Bentley Glass, Owsei Temkin and William Strauss (Baltimore: Johns Hopkins Press, 1959). A more critical appraisal, which appeared too late to be considered here, is C. Darlington, "The Origin of Darwinism," *Scientific American* 200:60 (May 1959).

the "good" ones, while the rest are weeded out. The gradual accumulation of the "good" variants, and of course, the further variation of the offspring in the "good" direction will eventually lead to a gradual transformation of the original type into a new one and in due time new races, species and even higher taxonomic categories will emerge from the process.

This ingenious theory explained, or at least seemed to explain, in a deceptively simple manner the high degree of adaptation of living beings to their environment and the many instances in which "useful" or "purposeful" organs or functions are encountered. However, it must be remembered that one fundamental point of Darwin's theory — and indeed of all earlier theories of evolution — was purely fictional: the mechanism of heredity. This was a fatal shortcoming. Since the individual living beings have a limited life span and, consequently, the long-range biological process, such as evolution, can proceed only through a succession of generations, it is obvious that the success of any attempt to explain evolution will depend on the knowledge (or assumption) concerning the mechanism of heredity: the way in which the properties of an organism are transmitted to its offspring. But one hundred years ago this was not known. "The laws governing inheritance are for the most part unknown," says Darwin himself in the *Origin*.[8] The general tendency was "to look at the inheritance of every character as the rule, and non-inheritance as an anomaly" — as again Darwin has expressed it.[9] It was also generally assumed that inheritance operates in a constant-intermediary, or "blending" manner. Thus if two individuals were to mate, while differing from each other in a certain characteristic, such as color, or shape, or size of a part or organ, it was assumed that the offspring would show the characteristic in an intermediary degree as if the respective characteristics of the parents were to blend, like two mixing liquids of different color or smell. The offspring showing the intermediary characteristic was supposed to transmit it in this intermediary condition to the next generation, so that hereditary characteristics were constantly "blended," or "diluted" in interbreeding. Darwin's own pangenesis theory of heredity is a good example of what biologists thought a hundred years ago about the operation of

[8] Chapter I. In the recent Mentor edition the quotation is on page 36.
[9] *Ibid.*

heredity. According to this theory all parts of the body give off minute pangenes, or gemmules, which circulate in the body and are absorbed by the cells of the body. The cells thus contain all "information" about the characteristics of the body and the eventual changes which affect the body. This is true also of the germ cells, which — when fused in fertilization with another germ cell of the opposite sex — form a new individual with the pangenes of both parental organisms, blended in equal proportion. The individual, of course, transmits its "blend" of pangenes to the next generation — blended further with the pangenes of the other parent. This involves not only a constant intermediary type of inheritance, but also an inheritance of any influence on any part of the parental body during its lifetime prior to germ cell formation, that is to say, an inheritance of acquired characteristics. All this was, of course, utterly wrong but there was no way of knowing it. The day of the Abbot of the Königskloster in faraway Moravia had not yet come.

It is therefore understandable that when the true mechanism of heredity was discovered (or rather when rediscovered in three instances in 1900) and it turned out to operate in a way entirely different from the assumptions of Darwin and his contemporaries, several points of the original Darwinian theory became untenable. The fact is that hereditary characteristics, or rather their potentialities, are transmitted from parent to offspring not like drops of mixing liquids — nor, for that matter, as blending pangenes — but as independent units which retain their individuality even in cross-breeding and reappear in later generations segregated and unaffected by the company they have kept. The material basis of this behavior, a substance which was localized later with great precision in the nuclei of the cells, is not influenced by the conditions of the body. The substance is firmly encased in oval, or elongated corpuscles which appear with surprising regularity at each cell division, are formed from certain components of the nuclei, and are called chromosomes. The chromosomes contain this "stuff of heredity" in small packages, conveniently called genes, each concerned with a different aspect of hereditary characteristics. They are arranged on the chromosomes in a linear, one-dimensional sequence, like beads on a string. The genes of the germ cells are extremely constant in their structure and arrangement, and under natural conditions only very rarely undergo

sudden, "spontaneous," unpredictable and incalculable changes either in their molecular structure or in their number, or arrangement, which result in changed hereditary properties and which today we call mutations. It is clear that the only source of evolutionary progress is the occurrence of such mutations in the hereditary material of the species and that the existing continuous, "fluctuating" variation is worthless from the point of view of evolution because it cannot produce anything really new. The occurrence of mutations was known to Darwin, too, under other names, but he rejected the idea that they play an essential role in evolution. His reason for this is quite interesting and sheds light on another of those weaknesses of his original concept, which are the consequence of lack of knowledge about the mechanism heredity. He says: "According to our experience abrupt and strongly marked variations occur in our domesticated productions singly and at rather long intervals of time. If such occurred under nature, they would be liable, as formerly explained, to be lost by accidental causes of destruction and by subsequent intercrossing."[10] The last words of this quotation show that Darwin believed in that conservative role of natural selection upon which he himself did not elaborate in his works, but which his followers and interpreters, like Wallace, Romanes, and even Weismann discussed in detail and considered rather important. It was supposed to "explain" how useful characteristics are preserved and sustained in spite of the alleged "diluting" effect of free interbreeding of "good" and "bad" variants. According to this concept it is natural selection which protects the "good" variants from being "washed away," or "watered down" in free interbreeding. Natural selection prevents this "dilution" of the advantageous characteristics by eliminating the individuals which carry the disadvantageous counterpart before they can mate. This preventive and protective-conservative role of natural selection was a necessary assumption in the days when heredity was supposed to operate in a "blending" manner. It made natural selection not only the creator, but also the maintainer, the Vishnu as well as the Brahma of new species.

As a result of this entire erroneous concept of heredity we find in Darwin's writings everywhere a curious indifference toward the

[10] Chapter VII. In the recent Mentor edition the quotation is on page 225.

crucial problem of the inheritance of changes which the individual acquires during its lifetime under the influence of environment through excessive use or neglect of certain organs. This was a fundamental assertion of the pre-Darwinian evolutionary theory of Lamarck, and Darwin did not realize that if it were true (which we know today is not the case) it would be a serious challenge to his own theory. He accepted the inheritance of acquired characteristics as a fact, a logical consequence of his own pangenesis concept, though he maintained that it plays only a minor role in evolution compared with natural selection.

As the various shortcomings of Darwin's original theory gradually came to be recognized by biologists after the dramatic rediscovery of the mechanism of heredity in 1900, there began a tendency to rescue the valid and valuable elements of the theory, especially the basic idea, the species-creating power of natural selection, and to reconcile them with the "new" concept of heredity, which was soon called, from the name of its originator, Mendelism. For this purpose a sharp distinction had to be made between evolution through natural selection (Darwin's principle) and evolution through direct adaptation to the environment (Lamarck's principle). In other words, the Lamarckian "impurities" had to be eliminated from the Darwinian concept, a task which was undertaken relatively early by August Weismann. Then the whole erroneous concept of the character-diluting effect of free interbreeding and the role of natural selection in preventing it had to be dropped, but this process was completed only after exact calculations were made concerning the consequences of the Mendelian principles of heredity on the composition of natural populations under different conditions, and only after the problem was treated with mathematical methods. Finally, and most important of all, mutations had to be made the basis of natural selection instead of the "continuous" variation. This last change was rendered somewhat easier by the increasing recognition of the existence of so-called micromutations: slight, inconspicuous hereditary variations, which, although appearing abruptly, affect only such "invisible" characteristics as longevity, fertility, resistance to disease, or so-called quantitative characteristics such as size, weight, number of structural elements, and so on. These micromutations come near to Darwin's idea of continuous hereditary variation; con-

sequently, transferring the role of continuous variation to these micromutations made the revision of Darwin's theory seem less drastic than it was in reality.

Mutation and selection together seemed to provide a firm basis for evolutionary thinking, and the new concept, which was based on the knowledge of these two phenomena, became the most powerful factor in the further development of evolutionary biology. This new concept is often called neo-Darwinism, or more recently, and perhaps more correctly, "the synthetic theory" (Simpson, J.S. Huxley), since it is indeed a synthesis, or rather an amalgamation of several concepts, and it is an open question how far it still resembles the original theory, which Darwin proposed a hundred years ago. But the principle of natural selection undoubtedly forms an integral part of it, and therefore the term "neo-Darwinism" or even "Darwinism" is also quite appropriate.

This synthetic theory has found much support among biologists and has achieved, in the last thirty years or so, some really spectacular success, a renaissance of favor which began with the recognition that a realistic approach to problems of evolution can be attempted only on a very low taxonomic level, well within and below the limits of "good" species. It was assumed that the study of the formation of such minor subspecific units, a process which takes place before our eyes and is called — perhaps not quite correctly either from the linguistic or the biological point of view — speciation, will yield results which by analogy can be extended to apply to the formation of new species and higher taxonomic units, processes obviously beyond the reach of human observation. This new approach meant an intensive study of the genetics — and the eventual changes in the genetic constitution — of natural populations, groups of individuals of a species living together under the same conditions and interbreeding freely with one another. The study proceeded along two main lines. One was the fine mathematical analysis of the genetics of populations under varying conditions of mutation and selection by Sir Ronald Fisher, J. B. S. Haldane, Sewall Wright, and others. The other line was an intensive field work on the phenomena of speciation in natural populations, conducted in the first and foremost place by biologists of Russian nationality or descent, like Tchetverikov, Dobzhansky, Timofeeff-Ressovsky, and by Dubinin among zoologists

and Vavilov among botanists. In more recent years this line of research was linked with cytological studies, and differences in the arrangement of genes — as revealed by the structure of the chromosomes — were found within and between populations of suitable species. Moreover, experiments were conducted in the laboratory with artificial "micro-populations" and the mechanism of evolution became demonstrable almost *ad oculos*. These spectacular results conclusively proved the reality and effectiveness of the evolutionary mechanism as envisaged in the synthetic neo-Darwinian theory and gave it unprecedented prestige and recognition. This recognition was effectively promoted by a number of excellent treatises on evolution, published in recent years, which have all emphasized the triumph of neo-Darwinism as applied to concrete cases. The works of Cuénot,[11] Dobzhansky,[12] Huxley,[13] Mayr,[14] Rensch,[15] Simpson,[16] and others in this vein have rendered invaluable service to evolutionary biology by convincing many that the science of evolution is no longer a collection of cloudy theories, but a well-founded branch of biology, based on an impressive array of facts, established with exact, and in some cases experimental methods. The effect of these works on biological thinking is well reflected in the universal praise of Darwinism at this centenary of its birth.

The success of the neo-Darwinian trend and its presentation has been so great that we now face a new difficulty of an entirely different nature in contemporary evolutionary thinking: a certain complacent belief that owing to the neo-Darwinian synthesis evolutionary biology has solved its main problems and that all that remains to be done is to work out a few minor details. Of course, this "danger" is a passing one since the history of biology teaches us that whenever periods of complacent stagnation occur, new surprises are not far away, and thus research receives fresh impulses from unexpected

[11] L. Cuénot (with the collaboration of A. Tétry), *L'évolution biologique* (Paris: Masson & Co., 1951).

[12] Th. Dobzhansky, *Genetics and the Origin of Species*, 3rd ed. (New York: Columbia Univ. Press, 1951).

[13] J. S. Huxley, *Evolution—The Modern Synthesis* (London: Allen & Unwin, 1942).

[14] E. Mayr, *Systematics and the Origin of Species* (New York: Columbia Univ. Press, 1942).

[15] B. Rensch, *Neuere Probleme der Abstammungslehre* (Stuttgart: Ferd. Enke Verlag, 1947).

[16] G. G. Simpson, *The Meaning of Evolution* (New Haven: Yale Univ. Press, 1949).

quarters. This will probably be the case with evolutionary biology, too, and it is not difficult even today to detect the new lines along which further research will probably proceed. The starting points of these new lines of tomorrow must obviously be the "weak points" of the neo-Darwinism of today.

Such weak points do indeed exist, a fact which is not denied by advocates of neo-Darwinism. One of the most prominent, Th. Dobzhansky, wrote not so very long ago of "weaknesses and deficiencies of the neo-Darwinian conception of evolution, which are numerous as even partisans ought to have the courage to admit."[17] Quite a number of eminent biologists have in the recent past raised their voices against the assumption, made by casual observers rather than by expert specialists, that neo-Darwinism possesses the answers to all the problems of evolution. The objections come especially from those biologists who are interested, directly or indirectly, in problems of ontogeny, the development of the individual from the fertilized egg, since it seems that their findings particularly are at variance with neo-Darwinian ideas.

We may profitably begin a consideration of their objections with the masterly analysis which Richard Goldschmidt, the recently deceased great biologist, gave in his Silliman Lectures at Yale University in 1939.[18] In these lectures Goldschmidt pointed out that modern neo-Darwinian research, by concentrating deliberately on evolutionary processes on a very small scale, has necessarily limited the validity of its conclusions to these. The picture of a smooth and steadily progressing evolution by means of natural selection acting on an almost unlimited supply of micromutations may be quite true as long as we are concerned with the origin of minute differences within a species, i.e., the formation of subspecies, races and race groups (*Rassenkreise*) or race chains ("clines"), local ecotypes, and so on. But the crucial question is: Are conclusions concerning the mechanism of evolution drawn from the study of microevolution to be extended to processes of macroevolution, the origin of new species, or genera or even of higher systematic categories? It is a basic assumption of neo-Darwinism that this question must be answered in

[17] Th. Dobzhansky, "Catastrophism versus evolutionism," *Science*, 92:356 (1940).

[18] The lectures were published in an elaborated form in R. Goldschmidt, *The Material Basis of Evolution* (New Haven: Yale Univ. Press, 1940).

the affirmative and that there is no essential difference between small and large-scale evolutionary events. What is true of microevolution must necessarily be true also of macroevolution. But Goldschmidt's answer to the question is an emphatic No and he gives a convincing elaboration of his thesis that there is a fundamental difference between micro- and macroevolution. "Microevolution by accumulation of micromutations — we may also say neo-Darwinian evolution — is a process which leads to diversification strictly within the species, usually, if not exclusively, for the sake of adaptation of the species to specific conditions within the area which it is able to occupy. . . . Subspecies are actually, therefore, neither incipient species nor models of the origin of species. They are more or less diversified blind alleys within the species. The decisive step in evolution, the first step toward macroevolution, the step from one species to another requires another evolutionary method than that of sheer accumulation of micromutations."[19] The difference between micro- and macroevolution is also revealed by the lack of true transitory forms between species. Such transitions do exist, of course, on the subspecific level, but "good species," i.e., distinct taxonomic units, the distinction between which was established by a thorough critical study and where possible by breeding, are always separated, according to Goldschmidt, by an "unbridged gap." What is, then, the mechanism of new species and higher systematic categories? Goldschmidt's answer to this question is an entirely new concept: the creation of new types not through slow evolution but through sudden great hereditary upheavals. To explain this, he contrasts micromutations, which are considered the basis of evolution in the neo-Darwinian sense, with the "visible" gross hereditary changes, which occur occasionally in domesticated, or laboratory-bred animals and plants (the "sports" of breeders) and change the organism sometimes quite drastically. These gross and abrupt mutations, which have rendered such invaluable service in experimental "indoor" genetics, seem to have little role in evolution, as Darwin had already maintained, although for the wrong reasons. This fact was repeatedly pointed out[20] since his

[19] *Op. cit.*, p. 183.

[20] For example, W. Johannsen, "Some remarks about units in heredity," *Hereditas*, 4:133 (1923); R. Goldschmidt, "Das Mutationsproblem," *Sitzungber. Dtsch. Ges. Vererbg. Z. ind. Abst. u. Verebungslehre*, 30:260 (1923); E. M. East, "Genetic aspects of

time. But to Goldschmidt they indicate the existence of other types of hereditary variation, which differ sharply from micromutations and may be looked upon as more profound changes in the genetic material. He envisages the possibility of a "complete change of the primary pattern or reaction system into a new one" and calls this a systemic mutation. Such systemic mutations, i.e., completely new, entirely "scrambled" or "reshuffled" genetic systems are, according to him, the basis of macroevolution; they are the steps by which new species, and even higher taxonomic categories are formed.

This was a rather startling suggestion, although Goldschmidt tried to bring it into harmony with existing knowledge about the nature of genes. But since in this respect, too, his views were rather unorthodox, and slightly ahead of his time, the majority of biologists, especially the directly interested geneticists, found it somewhat hard to accept the idea of such hypothetical systemic mutations as the basis of major evolutionary steps. However, in the years which have elapsed since Goldschmidt first proposed his new ideas on macroevolution, experimental research concerning the nature of the genes and their occasional mutation has brought about a number of new discoveries (especially with microorganisms), which have changed quite considerably our earlier views on these matters and have caused a shift in the direction of Goldschmidt's ideas. As Waddington has recently pointed out, the discovery by Lederberg of viral transduction of groups of genes from one bacterium into another and their incorporation in the hereditary system of the second host (which brought him a Nobel Prize this year) has shown that the kind of reshuffling of genetic material envisaged by Goldschmidt is a distinct possibility and therefore one can at least speculate about its mechanism without leaving the solid ground of reality.[21] As Waddington puts it, "it seems likely that we are far from having heard the last word about the nature of the variation on which Goldschmidt's unbridgeable gaps depend."[22]

certain problems of evolution," *Amer. Naturalist*, 70:143 (1936); A. Wolsky, "Phylogenetische und mutative Augendegeneration in der Familie der Gammariden," *Magyar Tud. Akademia Ertes.*, 51:645 (1934), (Hungarian with summary in German. See also *Nature*, 133:876, 1934); A. Wolsky, "Über einen blinden Höhlengammaride, Niphargus aggtelekiensis Dudich, mit Bemerkungen über die Rückbildung des Gammaridenauges," *Verhandl. Internat. Ver. Limnologie*, 7:449 (1935).

[21] C. H. Waddington, *The Strategy of the Genes* (London: Allen & Unwin, 1957).

[22] *Op. cit.*, p. 63.

Obviously, the idea of macroevolution by systemic mutations has a number of implications for various branches of biology, but especially in the domain of ontogeny, which Goldschmidt himself has thoroughly explored. (It must be remembered that he was essentially a developmental biologist and perhaps his greatest contributions were made in the field of developmental genetics, the tracing of the action of genes to early developmental processes.) It is not difficult to realize, and many have pointed this out before Goldschmidt, that any major changes in the hereditary constitution of a germ cell must produce very profound and therefore very early changes in the organism which will develop from that cell. The changes may be manifested as early as the moment of fertilization, or — in the case of the female germ cell, the egg — even earlier, from the beginning of oogenesis. Such changes will therefore affect the mutant's whole development and all the factors that control it. Since these factors are closely interwoven and delicately balanced, any modification, even a slight one, if it occurs in the early phases, will thoroughly upset and remold the "end result," the adult organism, which will be therefore entirely different from its siblings. The mechanism of development can thus explain the occurrence of the occasional giant steps, by which macroevolution proceeds.[23] Of course, the drastic changes in early developmental processes will result more often than not in hopeless monstrosities, which will not survive, or will not even complete their development. But those rare instances, in which a change in early development produces a viable new organism, will be the points of origin of new species or even higher types of taxonomic units. As Goldschmidt has epigrammatically put it, macroevolution depends on "hopeful monsters." He also quotes a characteristic paradoxical statement of the paleontologist Schindewolf, who has very similar ideas about evolution: "the first bird hatched from a reptilian egg."[24] This is, of course, not to be taken in a literal sense.

The idea that changes in early ontogenetic processes (produced by systemic mutations) are the basis of macroevolutionary steps has re-

[23] This aspect of evolutionary theory is thoroughly explored also in Sir Gavin de Beer's thoughtful study, *Embryos and Ancestors* (Oxford: Clarendon Press, 1951).

[24] O. H. Schindewolf, *Paläontologie, Entwicklungslehre und Genetik. Kritik und Synthese* (Berlin: Gebr. Borntraeger, 1936).

cently found a strong supporter in one of the greatest living embryologists, Albert Dalcq. In several fine essays, one of which is characteristically entitled "Le problème de l'évolution est-il près d'être resolu?"[25] and recently in his brilliant *Introduction to General Embryology*[26] (based on a series of lectures broadcast through the Université Radiophonique of Paris) he explains his embryological ideas about evolution. His conclusion is the same as Goldschmidt's: the major evolutionary steps must have affected "the whole chemistry of oogenesis in such a way as to produce a profound change of morphochoresis"[27] (i.e., visible development). He proposes the term "ontomutation" for the genetic basis of these radical transformations to emphasize their intimate connection with developmental, ontogenetic processes. He thinks that it is "hardly possible" to envisage the major transformations from one egg type of the animal kingdom to another as having taken place by a slow process of trial and error. These major egg types, which he characterizes masterfully[28] as the egg of the Spiralia "with its specialized cytoplasmic regions and its peculiar pattern of mitosis"; the echinoderm egg "with its double gradient"; the arthropod egg "with its tendency towards postponed cleavage"; the prochordate egg with "polar gradient, cortical field and myogenic cytoplasm"; the amniote egg with "condensed morphochoresis"; and finally the placental egg "with its precocious symmetry and narrow limitation of strictly embryo-forming material," represent respectively fundamentally different organizations and are separated from one another by gaps that are indeed unbridged. The types differ from one another in whole chains of closely geared transformations, which must have arisen simultaneously by one single ontomutation. Dalcq reminds us of the spectacular phenomenon of developmental regulation, which fascinated so many early experimental embryologists: a half egg, or even a quarter of an egg can produce under certain conditions a whole embryo and indeed a whole viable individual, as even human embryology teaches us in the case of identical (monozygotic) twins. The regulative capacity in

[25] In *Annales*, Société Royale Zoologique de Belgique, 82:117 (1951).

[26] A. Dalcq, *Introduction to General Embryology*, trans. by J. Medawar (Oxford: University Press, 1957).

[27] *Op. cit.*, p. 153.

[28] The quotations are on page 154 of his *Introduction*.

present-day eggs may have been the main factor in phylogeny responsible for rendering eggs capable of responding to drastic ontomutations in a constructive regulative manner, and enabling them to produce "hopeful monsters."[29] Dalcq's conclusion is surprisingly similar to Goldschmidt's: "I do . . . believe that there is something more in the evolution of biological systems than mutation and selection."[30]

This similarity of opinion in the case of two great developmental biologists on evolution should certainly make us ponder, even though authority alone cannot be an argument.[31] But the opinions of these biologists are supported also from other quarters. Reference was made already to the views of O. H. Schindewolf, one of today's leading paleontologists, whose convincing advocacy of sudden "outbursts" of macroevolutionary changes in certain relatively brief geological epochs followed by long periods of smooth, "orthogenetic" microevolution, is unfortunately less known in this country than the views of his neo-Darwinist opponents.[32] He points out, for example, that the diverse placental mammals all appear simultaneously in the paleocene and since then hardly any new addition to the group has occurred. Cephalopods had a similar sudden "outburst" in the ordovicium, followed by a long period of relative constancy. The same

[29] This regulative, "buffering" capacity of developmental processes in relation to both hereditary and environmental changes is the basis of another idea about the role of development in evolution: Waddington's concept of the "canalization of development." It aims at explaining the so-called Baldwin effect, i.e., cases in which recurrent adaptive reactions of subsequent generations to a persistent environmental condition become eventually hereditary and "inheritance of acquired characters" seems to occur. Cf. C. H. Waddington, "Canalization of development and the inheritance of acquired characters," *Nature* (London), 150:563 (1942); *Idem*, "Genetic assimilation of an acquired character," *Evolution*, 7:118 (1953).

[30] *Op. cit.*, p. 158. By "mutation" he obviously means micromutations, as distinct from his "ontomutations."

[31] There are other distinguished developmental biologists who have expressed different views concerning the bearing of development on evolution, as for example Sir Gavin de Beer *(op. cit.)* and J. T. Bonner *(The Evolution of Development.* Cambridge: University Press, 1958). For a highly interesting and thoughtful analysis of Darwin's own ideas on the significance of embryology in evolution see Jane Oppenheimer, "An embryological enigma in the *Origin of Species*" in *Forerunners of Darwin* (quoted above), pp. 292-322.

[32] Cf. O. H. Schindewolf, *Paläontologie, Entwicklungslehre und Genetik. Kritik und Synthese* (Berlin: Gebr. Borntraeger, 1936); *Idem, Grundfragen der Paläontologie. Geologische Zeitmessung, Organische Stammesentwicklung, Biologische Systematik* (Stuttgart: Schweizerbarth Verlag, 1950). Shorter summaries: "Darwinismus oder Typostrophismus?", *Arbeiten Ungar. Biol. Forschungsinst.* (Tihany), 16:104 (1946); "Evolution im Lichte der Paläontologie," *Congr. Geol. Internat.*, C. R. XIX Session (Alger, 1954).

phenomenon was observed in the successions of stone corals, and several other groups. Such cases, and the conclusions based upon them, certainly deserve attention especially in view of their striking agreement with the evolutionary ideas of biologists who distinguish sharply between micro- and macroevolution, and confine to the former the validity of the neo-Darwinian concept of slow, smooth evolutionary changes.

Even neo-Darwinist biologists feel today the growing necessity of making some distinction and therefore try to separate micro- from macroevolution, but without accepting the idea of any sharp differences in the mechanism. Thus Dobzhansky suggests[33] that the difference between micro- and macroevolution is that whereas the former is a kind of physiological process, which can be repeated over and over again and can be demonstrated in a laboratory experiment in a "population cage," with predictable results, macroevolution is a historical process, which consists of unique, unpredictable and nonrepetitive events, changes which occur only once in the lifetime of the species. But this difference, he maintains, arises simply because so many mutational and selective possibilities are involved in macroevolution that they cannot all be realized in time and consequently the element of chance plays an increasing role in producing the result. The difference between micro- and macroevolution would be thus merely a difference in the degree of complexity and one could even find borderline cases between the two categories in which the complexity would just begin to appear with an increasing unpredictability and uncertainty of the outcome of laboratory experiments or field observations with mixed micro-populations, as if there were just a few too many variables for human beings to control or foresee. Such transitory cases have actually been labeled mesoevolutionary by Dobzhansky, and he suggests that they prove the absence of any fundamental difference between micro- and macro-evolution.

It is doubtful whether the criterion which he suggests as the basis of distinction between micro- and macroevolution will be acceptable to advocates of a more profound difference. What he defines as microevolution could be perhaps better termed submicro-evolution

[33] Th. Dobzhansky, "Evolution as a creative process," *Proc. 9th Internat. Congr. Genetics*, 1:435 (1954). (*Caryologia* 6: Suppl.); *Idem*, "Evolution at work," *Science*, 127:1091 (1958).

(as, for example, seasonal variations in the frequency of certain hereditary characters in the composition of a population), while his macroevolution would correspond more or less to what others consider the formation of subspecific taxonomic units, or "speciation," i.e., microevolution. In any case, Dobzhansky assures us that in spite of the identity of the mechanism of micro- and macroevolution there is a fundamental difference between the two because macroevolution is creative. This is due to its unpredictable, nonrepetitive character, which makes it the producer of changes which are new, unique, and irrevocable, whereas microevolution is more or less stationary, repetitive, and reversible. Dobzhansky quotes Sir Ronald Fisher's statistical definition of the creativeness of natural processes.[34] Natural causation, according to Fisher, can be viewed as the result of a game of chance. "We can imagine ourselves able to foresee all its forms, and state in advance the probability that each will occur. We can no longer imagine ourselves capable of foreseeing just which of them will occur."

Whether one accepts this kind of creativeness as the essential characteristic of macroevolution or prefers to think that the more dramatic creativeness of Goldschmidt's systemic mutations, the production of "hopeful monsters," is involved in the creation of new taxonomic categories of a higher order, the question remains debatable. Goldschmidt's views have often been described as "catastrophism" or even as a "belief in miracles."[35] This is, of course, not to be taken literally, but if we accept the phrase, the difference between the conflicting views on macroevolution boils down to whether one prefers to believe in a few large-scale "miracles" or in a large number of small wonders.

It is not the purpose of this article to judge the tastes, but only to show that there are different tastes, differences of opinion as to the significance of the neo-Darwinian concept in contemporary explanations of the mechanism of evolution. As we have seen, there are serious objections to the view that Darwin's principle of natural selection acting on numerous small hereditary variations (micromutations) provides the only and universal explanation of evolutionary processes, and especially of the origin of higher taxonomic categories.

[34] R. A. Fisher, *Creative Aspects of Natural Law* (Cambridge: University Press, 1950).
[35] For example, by Th. Dobzhansky in *Science*, 92:358 (1940).

The existence of such objections to the Darwinian concept should be no surprise to anyone familiar with the history of Darwin's theory in its first hundred years. It is a story of heated debates and controversies from the beginning. Apart from the early opposition to Darwin's views — which were at that time more or less identified with the whole idea of organic evolution and were therefore discussed on a philosophical, ideological level rather than from the standpoint of the specialized scientist — there were biologists from the beginning who objected to it or to some part of it from a purely scientific point of view. It is well known that even such an ardent early advocate and promoter of Darwin's ideas as T. H. Huxley had his reservations about some details of the theory, and the same is true of August Weismann, who by sharply rejecting the Lamarckian elements in Darwin's theory became the first of the numerous reformers of Darwinism. By making natural selection the sole cause of evolution and proclaiming the *Allmacht der Naturzüchtung* he started a kind of ultra-Darwinist movement, which was soon followed by a period when the theory was sharply criticized and more or less rejected. Neo-Lamarckists, among them the great Oscar Hertwig,[36] started to emphasize — perhaps in reaction to Weismann — the "inner factors" of evolution and the many alleged cases of "direct adaptation" to external influences. Early Mendelian geneticists, like Bateson or Johannsen, attacked the theory from another angle and made natural selection into a negative force. By paraphrasing Weismann's slogan they talked about the *Ohnmacht der Naturzüchtung* in such cases as pure line populations with a near-zero rate of mutations. (There were at that time no reliable data on the frequency of the occurrence of mutations in any species.)

But Darwin's concept has survived this period of declining prestige and, as we have seen, has even made a rather spectacular "comeback" in the last quarter of its century of existence. This is not because the original reasoning became any more convincing, but because there was a constant tendency on the part of Darwin's interpreters to bring his views in harmony with other views and to present compromise solutions, like the synthesis of Darwinism and Mendelism in the early 1930's. The hundredth anniversary finds Dar-

[36] Cf. O. Hertwig, *Das Werden der Organismen. Zur Widerlegung von Darwins Zufallstheorie durch das Gesetz in der Entwicklung*, 3rd ed. (Jena: Verlag Gustav Fischer, 1922).

win's theory in the same situation as the earlier ones: there are still objections to it, even in its greatly revised form, neo-Darwinism, and there are still opposing views which have to be reconciled with it. Today the basic assumption of neo-Darwinism that macroevolution is a repetition of microevolutionary processes on a large scale seems to become, with many biologists, a kind of a new *biogenetisches Grundgesetz* (the ill-famed theory of Haeckel that ontogeny is a brief recapitulation of the evolutionary history of the species and that this is the explanation of all phenomena of evolution). But there are unmistakable signs that the opposite view, according to which microevolution is not the whole evolution in a nutshell but only a part of it, is also gaining momentum. There are clear indications that this centenary year may see increasing recognition of the necessity for distinguishing between micro- and macroevolution and perhaps even a recognition of the discontinuous character of the latter.[37] How sharp the distinction will be and how far the mode of macroevolution will appear to differ from the neo-Darwinian concept remains to be seen. This question will be probably debated often in the near future, and as heatedly as some years ago the role of the Lamarckian principle, or the role of mutations, was discussed. It seems quite likely that biologists, preoccupied with the analysis of developmental processes, will play a major role in these discussions.

But such discussions, even if critical of some tenets of neo-Darwinism, do not alter essentially its position as a leading concept in contemporary evolutionary thinking. Today the problem is not whether neo-Darwinism is right or wrong, but whether it is the only and the universal explanation of the mechanism of evolution or whether other concepts have to be evolved along with it. In any case, the leading role of Darwin's principle of natural selection in the formulation of evolutionary theories is now well established and undisputed. And as far as the influence of the Darwinian ideas on biological thinking in general is concerned, even those who are inclined to think that today they form only part of the evolutionary picture must admit that the first hundred years of these ideas represent one of the greatest chapters in the history of biology.

[37] Cf. R. Goldschmidt, *Theoretical Genetics* (Berkeley & Los Angeles: Univ. of California Press, 1955). In Part 5, pp. 491 ff., he lists geneticists (e.g., Burgeff, Gustafsson, Stubbe, von Wettstein) who have reported recently the occurrence of "macromutations" and seem to be inclined to accept their role in evolution.

"With the one exception of Newton's 'Principia,' no single book of empirical science has ever been of more importance to philosophy than this work of Darwin's."

—JOSIAH ROYCE

DARWIN'S IMPACT ON PHILOSOPHY

JAMES COLLINS

SOMETIMES A CENTENARY DESERVES only perfunctory recognition, marked perhaps by some pardonable rhetoric of the moment and the routine of scholarly exhumation. It would be grotesque, however, to approach Darwin's *The Origin of Species* (1859) in an antiquarian spirit since the book records one of man's decisive penetrations in his persistent effort to understand the world and himself. We are different because of its transforming presence, its capacity for unifying the data and theories in biology and for impelling the evolutionary theme into the central position it now occupies in all regions of human thought and sensibility. There are no living sciences, human attitudes, or institutional powers which remain unaffected by the ideas that were catalytically released by Darwin's work and the great efforts at generalization to which it gave impetus, direction, and prestige.

To acknowledge the massive cultural importance of Darwin's own biological findings and of the general evolutionary outlook which it encouraged is not sufficient to dispense us, however, from the usual tasks of careful analysis and critical sifting in the various fields. The human mind is not a mass of seaweed which must simply surrender itself to the prevailing tides: the work of careful discrimination and critical assessment has to continue even at the time when the contemporary mind is keenly aware of how deeply it is permeated by evolutionary ideas. The need for reflection upon the significance of the Darwin centenary is perhaps greatest in philosophy, since it

is here that we study the transition from the biological theory of evolution to evolutionism or the general interpretation of man and the universe in comprehensive evolutionary concepts. This transition is sometimes accomplished insensibly in particular areas of thought where full attention is not paid to questions of method, theory-construction, and the validity of appeals to analogy. But the philosopher's business is to deal with such topics explicitly and to study them in the concrete case of applying biological evolution to all other regions of knowledge and interest. The centenary pause can be made a constructive occasion for renewing the philosophical task of testing the meanings and range of evolutionary speculation in its extended development.

Moreover, the internal growth of philosophy itself during the past hundred years has been strongly shaped by the current of evolutionism. We must continue to agree with the estimate of *The Origin of Species* made over two generations ago by Josiah Royce: "With the one exception of Newton's 'Principia,' no single book of empirical science has ever been of more importance to philosophy than this work of Darwin's."[1] For an understanding of philosophy in its own domestic history during this period, then, we have to examine the various ways in which philosophers responded to the evolutionary theory and sought to give it the function of a universal explanatory principle. Discussions centering around this issue bring us to the heart of many philosophical achievements and tendencies that determine our present standpoints. The evolutionary premise is none the less real and influential for having attained the privileged status of an accepted framework for contemporary philosophical inquiries.

Here we can only bring into focus a few significant aspects of the philosophical reception of evolutionary ideas. Except for Bergson and some passing references to other men, all of the thinkers with whom we will be concerned belong to the English-speaking world of Darwin himself and his first defenders and opponents. Even within this limit of biologically oriented philosophies, we will have to confine the analysis to some points which seem to be historically important and yet which contain some doctrinal significance not yet adequately grasped. The first two sections will consider the drift

[1] J. Royce, *The Spirit of Modern Philosophy* (reprint ed., New York: Braziller, 1955), p. 286.

in Victorian England toward blending a metaphysical agnosticism about ultimate matters with a definite belief in progress on the human scale. In the next two sections, our attention will turn to the spread of evolutionism in America and the specific way in which Bergson made a central issue of the methodology used in every generalized theory of evolution. In the two remaining sections, we will study some representative idealistic ways of treating evolution, as well as the most recent concentration of evolutionary discussion around the thought of Julian Huxley.

1. From Physico-Theology to Agnosticism

Darwin's story is seldom retold without including a dramatic foreshortening of the whole question of evolution and theistic religion.[2] The famous 1860 encounter at Oxford between Bishop Wilberforce and Darwin's bulldog, Thomas Huxley, resulted in the utter deflation of the former and in the latter's memorable vindication of the seeking and telling of truth in scientific questions. This meeting is often made to do the work of a definitive symbol for an agelong conflict between science and religion, at least a religion having a basis in theism and Christian revelation. When the symbolic transformation of the incident occurs, it then becomes difficult for anyone thinking in these terms to consider it at all likely that theists may still have some good grounds for their assent to God and to man's service of religion. In this common situation, the question of God and evolutionary thought becomes unavoidable. And equally unavoidable is a preliminary historical analysis of the typical views on God which were contested by the early Darwinians. Just as one cannot properly evaluate the customary easy appeal to Kant in ruling out a metaphysics of God without examining the historical circumstances shaping the Kantian conception of natural theology, so one cannot effectively deal with the symbolic use of the Wilberforce-Huxley encounter without analyzing the prevalent approach to God which the first generation of Darwinians found inadequate.

The Victorian crisis of unbelief, as induced by evolutionary controversy, has a definite but severely limited significance as far as the underlying philosophical issues are concerned. There can be no

[2] See the witty opening chapter of W. Irvine, *Apes, Angels, and Victorians* (New York: McGraw-Hill, 1955).

question here about an undermining of natural theology as a whole, since the whole range of the philosophy of God does not enter into the actual dispute. There are definite ways of developing a philosophical approach to God which simply do not get explored and weighed by the principal Victorian evolutionists and their theistic counterparts. Newman and his way of individual assent, for instance, stand entirely apart from the two groups actually at odds, and the same can be said about a realistic causal inference from finite sensible being to God. Yet what gives dramatic intellectual importance to the Victorian quarrel is that it does indeed mark the end of the road for one widely accepted route to God: that of physico-theology.

This approach takes its name from William Derham's Boylean Lectures of 1711-12 on *Physico-Theology*, and finds its classical expression as a teaching instrument in William Paley's manual titled *Natural Theology* (1802). There is a fate about these titles themselves. Whereas in his first *Critique*, Kant located the current design argument within a physico-theology, at the outset of the nineteenth century the latter became identified in England simply with natural theology. When Newman at Oxford and Darwin at Cambridge did their required reading in Paley, they were being introduced to all that remained effective at the British universities of the rich variety of ways in natural theology.[3] The latter had contracted itself to what was in effect a physico-theology, and Newman almost alone of his generation was able to make the proper distinctions and to develop a philosophical approach to God that was not reducible to physico-theology. In large measure, the Victorian crisis over evolution arises out of a failure on the part of men like Darwin, Huxley, and Wilberforce to see that the Derham-Paley position falls pitifully short of encompassing all the resources of the philosophy of God, and hence that it does not deserve to be treated as natural theology without qualification.

Although the Greek and Christian traditions have always appealed to the traces of divine order and providential governance in the visible universe, this general appeal takes its specifically philosophical meaning and cogency from the particular intellectual context within which it functions and by which it is qualified. The novel

[3] G. West, *Charles Darwin: A Portrait* (New Haven: Yale University Press, 1938), p. 78, reports that Darwin knew Paley's *Natural Theology* by heart and admired its logic.

feature of the Derham-Paley argument from design is that it conforms with the requirements and limitations of modern classical mechanics. The mathematically formulated laws of Galileo and Newton concern the motion and position of macroscopic bodies. But they are not framed to give any understanding of the essential structure of material things, their existential composition and causal dependence in being, or their finality as based upon an act-potency analysis of their principles of being. Physico-theology accepts these restrictions of explanation and hence does not furnish any inferences to God that are based upon the metaphysical considerations which fall outside the scope of Newtonian mechanics. Operating within the phenomenalism and constructural method set by this scientific viewpoint, the appeal to order in the universe takes on a definite hue and shape. It does not deal with the intrinsic finality of agents but confines itself to a study of the design and extrinsic relations exhibited by component parts of the world machine.[4] Within this historical situation, the appeal to cosmic and organic order becomes a design argument and foregoes any metaphysical basis in the study of the finality of finite agents.

The specifying influence of the phenomenalistic and mechanistic context accounts for two special traits of the arguments employed by the physico-theologians. In the first place, great stress is laid upon the analogy of the workman and his product as a way of understanding and accepting the relation of God to the whole universe and especially to the organic sphere. Analogy now takes on a separate career of its own. It is no longer founded upon a direct metaphysical analysis of the need for a causal act to account for composed existents, but instead it becomes an independent basis for leading us to the designer of things. The design argument is based upon a maker-analogy which is liberated from a study of causal dependency in being and hence which seeks to convince us on the strength of the analogy itself. It is because of the analogy of making that we are asked to accept the maker as the actual cause. The only kind of causal activity which God can have within this perspective is of a making sort, and the only ground for requiring this activity is the persuasiveness of the analogy itself. Such an autonomous maker-analogy is particularly

[4] On this distinction in general, see R. L. Faricy, S.J., "The Establishment of the Basic Principle of the Fifth Way," *The New Scholasticism*, XXXI (1957), 189-208.

vulnerable, since it does not clarify the meaning of causation, the possibility of applying the making activity beyond agents within material nature, and the degree to which an independent comparison can be made between the many, finite cases of making which we do experience and the unique, presumably unconditioned sort of making which belongs to the divine designer. These are precisely the points at which Hume and then Kant attacked physico-theology and forced it to retreat from claims about a design for the entire universe to those for a design of organic things.

Here, however, the second characteristic of the design argument becomes prominent and ultimately undermines the position itself. For this approach to God rests upon showing some deficiencies in the mechanical system, some instances of motion and adaptation which requires the intervention of an intelligent agent over and above the mechanical forces at work in nature. The maker-analogy is to be accepted mainly for the negative reason that we cannot account for certain aspects of the world by means of the scientific principles now at hand. But as both Laplace and John Stuart Mill point out, this kind of reasoning places our acceptance of God upon a temporary basis which disappears as soon as the scientific explanation is sufficiently rounded off to include the facts in question. Without fully realizing what they are doing, the physico-theologians are simply formulating in theistic terms a challenge for science to fill out its own explanation and thus render belief in God otiose or at least founded on some other considerations than the shortcomings of the scientific analysis at some particular phase in its history. This is what Kant means when he says that the "God" of physico-theology is only a limit-idea for scientific explanation, and what the story about Laplace conveys in stating that there is no longer any need for the hypothesis of God in celestial mechanics.

With Paley, physico-theology made one last effort to reach God within a phenomenalistic and mechanistic framework or (as the subtitle of his book phrases it) to furnish "evidences of the existence and attributes of the Deity collected from the appearances of nature." Yet this way of thinking had only maneuvered itself into the negative position of invoking God as a means of filling in the lacunas in the scientific account of the earth and organic adaptations. It could only be expected, then, that the great development of geology in Eng-

land during the first half of the nineteenth century would also be the story of a constant retreat made by theists, many of whom were themselves prominent geologists.[5] A rearguard action was fought by the defenders of catastrophism, which explained the fossil record by appeal to a series of divine interventions bringing one organic world to a cataclysmic close and replacing it by another. Through the work of Hutton, Cuvier, and above all Sir Charles Lyell, the uniformitarian view finally prevailed, opening up for our minds the vast stretches of geological time and the constant operation of uniform natural forces. It becomes clear that the time-scale used by the physico-theologians was pitifully inadequate, that species did become extinct, and that constant natural factors could account for earth strata and their adaptive relations as successfully as for the formation of the stars.

By the time Darwin was bringing his theory about the origin of organic species to maturity, the case for physico-theology was also rapidly shrinking to the region of living things. Here at least, it seemed quite clear to Paley and his countless readers that divine agency is needed to account for adaptation in organisms. If any one balked at being able to trace the connection with a designing mind as readily in the organism as in the watch, he had a confident reply. "In the animal, we trace the mechanism to a certain point, and then we are stopped; either the mechanism becoming too subtile for our discernment, or something else beside the known laws of mechanism taking place."[6] But Darwin simply refused to stop at the threshold of organic nature. He chose to enlarge our knowledge of the range of mechanism at this point and in doing so he could only conclude that he was also sapping the resources of physico-theology, which he identified with natural theology as a whole. In his study of competition and natural selection, chance variation and indefinite divergence of forms, he felt that he had found the instrument for piercing the subtlety of the life process by means of mechanical forces, without

[5] For this problem in Great Britain during the background years 1790-1850, read C. C. Gillispie, *Genesis and Geology* (Cambridge, Mass.: Harvard University Press, 1951). "During the seven decades between the birth of modern geology and the publication of *On the Origin of Species*, the difficulty [between science and religion] as reflected in scientific literature appears to be one of religion (in a crude sense) *in* science rather than one of religion *versus* science" (p. ix).

[6] W. Paley, *Natural Theology* (thirteenth ed., London: Faulder, 1811), p. 20.

appealing to a special creative act for each natural species. The design in organisms is undeniable as a descriptive fact of adaptive relations, but the explanation of how it is brought about through chance variation and other natural factors remains at the level of the immanent mechanism of nature. There may be a supreme contriver of living things, but we are no longer coerced by deficiencies in biology to say that there must exist such a divine designer.

In his historical situation, Darwin could not avoid viewing every successful new step in his explanation as being correlated with the last few steps remaining in the case for God drawn from the appearances in nature. He himself never drove home aggressively the ruin of physico-theology and only worked out its negative implications for his own religious view in a gradual, unemphatic way. He drifted slowly and painlessly from the passive theism of his early days to the *Origin of Species*' concluding remarks on a vaguely supposed superintending power, and finally to the complete agnosticism and indifference which marked his last years. Darwin's original hold on the theistic conviction had depended on the atmosphere of physico-theology, and as this state of mind gradually faded away before the advances in geology and his own evolutionary biology, it was not replaced by any other living way to God. For him, then, the disappearance of the grounds for Paley's design argument meant the disappearance of all reasonable evidence for the reality of God, and hence his interest simply turned in other directions.

In June of 1860, however, Darwin was still cautious enough about drawing any agnostic implications from his theory of organic evolution to make the following long reply to the religious-minded Lyell, who had warned him against confusing natural selection with the primary creational laws.

> One word more upon the Deification of Natural Selection: attributing so much weight to it does not exclude still more general laws, *i.e.* the ordering of the whole universe. I have said that Natural Selection is to the structure of organized beings what the human architect is to a building. The very existence of the human architect shows the existence of more general laws; but no one, in giving credit for a building to the human architect, thinks it necessary to refer to the laws by which man has appeared. No astronomer, in showing how the movements of planets are due to gravity, thinks it necessary to say that the law of gravity was designed that the planets should pursue the courses which they pursue. I cannot believe that there is a bit more inter-

ference by the Creator in the construction of each species than in the course of the planets. It is only owing to Paley and Co., I believe, that this more special interference is thought necessary with living bodies. . . . I demur also to your putting Huxley's "force and matter" in the same category with Natural Selection. The latter may, of course, be quite a false view; but surely it is not getting beyond our depth to first causes.[7]

This was an admirable statement of scientific caution in the face of philosophical issues. The only difficulty was that it led only to the negative conception of a noninterfering Deity, for whose causal operation in the universe no positive evidence was being supplied. Darwin was unable to find within the method of biology any basis for admitting some causal activity more basic than the laws of organic evolution and planetary formation. Especially after including man within the scope of evolutionary process, he had no ground in biology for regarding the more general laws as forces imparted to matter by God rather than as immanent patterns of activity without any transcendent reference, as Huxley was suggesting. And Darwin did not acknowledge any other method than the biological one for inquiring into the causal factors involved in the development of man and other living things. In the end, the only sure point was that Paley and Co. had been put out of business by his own explanations and that there were no evident reasons for pushing beyond his account. For the rest, Darwin simply confessed his inability at grasping metaphysical questions and so preserved a calm agnosticism about God.

Our present study of Darwin's gradual repudiation of the design argument suggests that the whole issue deserves some further historical and doctrinal investigation. For one thing, it would seem

[7] F. Darwin and A. C. Seward, editors, *More Letters of Charles Darwin* (2 vols., London: Murray, 1903), I, 154, 155. Darwin's few guarded statements on religion are gathered in F. Darwin, *The Life and Letters of Charles Darwin* (2 vols., New York: Appleton, 1898), I, 274-86. His preoccupation with Paley crops out in his remark that "the old argument from design in Nature, as given by Paley, which formerly seemed to me so conclusive, fails, now that the law of natural selection has been discovered" *(ibid.,* I, 278). He adds that physical evil is more compatible with natural selection than with a providential God, that it once seemed to him unlikely that the whole universe came from blind chance and necessity, but nevertheless that the animal origin of our mind probably incapacitates us for answering these questions with certainty. See M. Mandelbaum, "Darwin's Religious Views," *Journal of the History of Ideas,* 19 (1958), pp. 363-378. The publication of the integral text of the *Autobiography of Charles Darwin,* edited by N. Barlow (New York: Harcourt, Brace, 1958), does not greatly alter the picture of a gradual fading away of Darwin's theism and interest in natural religious belief. But it does make available his critical remarks on Christianity and the account of his relatively early loss of the Christian faith.

advisable to reserve the name "the design argument" for that definite sort of appeal to the order in the visible universe which was formulated historically within the framework of modern scientific mechanism and phenomenalism. Moreover, we must discriminate at least five major features in the argument as it was understood by Darwin and his associates, as well as by its defenders among orthodox minds. (1) It is a nonmetaphysical approach to the world and hence does not concern itself with that sort of finality which rests on a metaphysical analysis of action. (2) It is based directly and primarily on the maker-analogy as an independent source, instead of seeking its inferential strength in a causal study as the basis for a causally regulated analogy. (3) As it actually develops, the design argument depends upon the current state of scientific knowledge in the relevant areas. Hence it cannot aim at achieving more than a high probability which always remains open to future revision, in accord with the pattern of scientific research. (4) It sometimes supposes that there is an inverse relation between the limits of scientific knowledge and the extent of theistic assent. Every advance of science would then involve a correlative step of retreat on the part of a design-based theism. (5) Sometimes the proponents of the design argument add that their physicotheology constitutes the whole content of a valid natural theology. It is important to recognize that only the first three traits characterize the design argument in its main historical forms. The last two notes are found specially in the sources studied by Darwin, but they are removable without destroying its import. Unfortunately, Darwin himself does not weigh these various components and consider other theistic ways.

Commenting recently on this whole issue, the anthropologist Loren Eiseley has suggested that "Darwin did not destroy the argument from design. He destroyed only the watchmaker and the watch," that is, he presented a developmental view of nature which simply rendered obsolete Paley's metaphor about nature being a machine with a cosmic machinist as its tinkering maker.[8] But it was psychologically difficult for Darwin and especially for Huxley, who hardened and universalized the standpoint of evolutionary agnosti-

[8] L. Eiseley, *Darwin's Century* (New York: Doubleday, 1958), p. 197.

cism, to slough off the watchmaker approach and still refrain from concluding that thereby all the empirically ascertainable avenues to God were cut off for the human mind. Huxley was fond of using the very terminology of Derham and Paley by referring to natural selection as a *vera causa*, as a real cause (and in a still more generalized form, as *the* most comprehensive, scientifically knowable cause), as the precise mode of causal efficiency in which the general agency of force and matter operates in the organic world. This real causal interpretation of evolutionary factors gave to time itself a limitless creative power for bringing about the emergence, modification, and indefinite divergence of all organic species. And when the causal power of evolution was linked to the universal cosmic forces, there would seem to be no need for supposing any more primary sort of causality to which the evolutionary and cosmic agencies themselves would remain subordinate and which would furnish the human mind with evidential grounds for accepting God's existence.

There were two aspects in Huxley's outlook, however, which considerably weakened this conclusion even for himself. He failed to examine critically the various meanings for "cause" and to determine the precise way in which the biological description of evolutionary process combined causal factors, in the biological sense, with other types of explanatory reasons. Furthermore, he remained unsure whether we do or can know anything about matter in its own reality. And since he conceived of evolutionary forces as the display of matter's causal power in the organic sphere, he could not supply any ultimate basis for actually ruling out a causal power more primary than that of the evolutionary factors. Hence there was a curious discrepancy between Huxley's public pronouncements on the ultimacy of evolution and his private admission that God may be operating in the universe as the hidden banker or cosmic chess player.[9]

The grand systematizer of evolutionary agnosticism was Herbert Spencer. The very low state of his reputation among present-day philosophers makes it difficult for us to realize the full extent of his influence during the latter half of the nineteenth century or his function as the point of departure for almost all subsequent philosophers

[9] Huxley's private waverings come out most clearly in correspondence with Charles Kingsley and are examined in Irvine, *Apes, Angels, and Victorians*, pp. 127-34.

of evolution. In his self-revealing essay on "The Filiation of Ideas," he traced the formation of his own developmental outlook to various sources in the pre-1859 period, thus reminding us that evolution was definitely in the air in the decades before Darwin and Alfred Wallace read their famous papers. Spencer acknowledged his debt to Schelling's typically Romantic philosophical view of life surging toward individual peaks, to Lyell's geological work on continuous development of the earth, to K. E. von Baer's embryological study of the trend from homogeneity to heterogeneity, and to some historical studies on the social differentiation and integration of peoples. Darwin only confirmed for Spencer what these earlier sources had already suggested on the evolutionary generalization that all kinds of motion tend from homogeneity to heterogeneity, from the undifferentiated to the differentiated state, and from disaggregation to close integration of parts.

Spencer tells us that the habit of selecting evidence for its value as illustrating this evolutionary pattern was strengthened in his mind by the need for some general conception to replace the outworn theory of special creation of the various forms of nonliving and living things.

> In 1852 the belief in organic evolution had taken deep root, and had drawn to itself a large amount of evidence—evidence not derived from numerous special instances but derived from the general aspects of organic nature, and from the necessity of accepting the hypothesis of Evolution when the hypothesis of Special Creation has been rejected. . . . From this time onwards the evolutionary interpretation of things in general became habitual.[10]

It is noteworthy, however, that Spencer's rejection of the Derham-Paley position does not lead him to atheistic naturalism or to the thesis about the warfare of science and religion. Quite to the contrary, he concludes that science and religion can now be reconciled

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[10] D. Duncan, *Life and Letters of Herbert Spencer* (2 vols., New York: Appleton, 1908), II, 319. (The text is from Spencer himself, who wrote about his own development in an impersonal mode.) For scholarly research on the pre-Darwinian history of evolutionary theories, H. F. Osborn's *From the Greeks to Darwin* (revised, second ed., New York: Scribner, 1929) has long been outmoded by the work of Lovejoy, Zirkle, and others; Eiseley gives a good description of the two generations of scientific thought before Darwin in *Darwin's Century;* a new reading of the sources is made by W. Zimmermann, *Evolution: Die Geschichte ihrer Probleme und Erkenntnisse* (Freiburg and Munich: Verlag Karl Alber, 1953). But the best report of recent findings is the collection of essays by B. Glass and others: *Forerunners of Darwin, 1745-1859* (Baltimore: Johns Hopkins Press, 1959).

on the ground of their common recognition of the unknowable. They both admit that there is an absolute which transcends our ability to know or conceive, beyond the bare affirmation of its presence.

Underlying this interpretation is Spencer's own philosophical phenomenalism, which is more radical than that of Hamilton and Mill. Neither through scientific nor religious means can the human mind advance its range of knowledge beyond the sensible phenomena and their immanent laws. We can indeed ascertain the laws of order according to which the changes in the cosmos occur, but such a descriptive pattern "still leaves unexplained the *nature* and *origin* of them."[11] It is enough to know that phenomenal events and their immanent laws do have a nature and origin in order to conclude to the reality of the absolute, but we cannot advance a single step beyond this affirmation. All we can try to do is to apply to the unknowable our own subjective and symbolic conception of cause or power. But neither the scientist nor the religious mind can transcend the symbolic mode of signifying the unknowable absolute, and precisely in this joint disability to specify it any further lies the principle of their harmony. Thus Spencer regards an evolutionary agnosticism as the best means of reconciling science and religion in our age.

What still keeps Spencer's position intriguing is the way it combines agnosticism about the nature of the material world and God with a resolute systematizing of the human sciences and realms of experience. Within the phenomenal order, he is unlimitedly hopeful about the synthetic power of his evolutionary formula. It becomes a synthetic principle by moving beyond the biological procedures of assembling empirical facts, proposing inductive hypotheses, and supplying particular verifications for them. Evolution as a philosophy and not simply as a theory in biology or any other special scientific field depends upon the rule of giving a *deductive* interpretation to all inductively established positions.[12] Philosophical evolutionism rests upon this conversion of factual inductions and their attendant theories into necessary deductive consequences of the most universal phenomenal principles. Until this deduction is made,

[11] In Duncan, *Life and Letters of Herbert Spencer*, II, 334.

[12] *Ibid.*, II, 313-14, 323, 326 (against Huxley); Herbert Spencer, *First Principles* (sixth ed., Akron, Ohio: Werner, 1900), p. 502.

Darwinian evolutionary thought is regarded by Spencer as infra-philosophical.

Even the particular laws of evolution must be shown to be deductively related to the laws of motion and the supreme principle of the persistence of force. Spencer observes that the latter is not properly called the "conservation of force," since this might lead to illusory inferences to a conserver or some conserving act that would violate the phenomenal limits of human knowledge. The persistence of force is indeed the first deductive principle of the evolutionary system, but no ontological inferences can be drawn from it. In respect to the absolute, it is only the scientific way of making a symbolic reference to the unknowable something as being the powerful core of the universe.

Spencer was quite abstemious in his use of factual studies, being content with using a minimal amount of materials for suggesting an evolutionary pattern for some special area. His synthetic philosophical principles for biology, psychology, and sociology sought mainly to introduce a deductive rigor into these sciences by showing their necessary connection with his more general statement of the persistence of force, the laws of motion, and the formula for evolution. He made a peppery defense of this deductive procedure against Huxley by noting that biology and other sciences do not achieve their full standing within philosophical evolutionism until the deductive entailment is established. At the same time, he rendered his entire synthetic enterprise highly vulnerable to any attack concentrating on the concept of force. This was precisely the point singled out by Henri Bergson in his Collège de France lectures for 1904-05.

> If one attributes here to the word "force" the meaning which the scientist gives to the word "energy," Spencer's conclusions must be greatly restricted. If, on the other hand, one takes the word in the broader meaning in which Spencer often seems to use it, the conclusions of this philosophy lose the basis which he thought to find for them in positive science.[13]

Bergson was suggesting that Spencer either had to sacrifice his grandiose systematic deduction of all areas of knowledge or else admit that it is lacking in scientific rigor. Taken in conjunction with the twentieth-century developments in the concept of energy, this criti-

[13] H. Bergson, *Écrits et paroles*, tome I (Paris: Presses Universitaires, 1957), p. 234.

cism contributed toward the rapid erosion of Spencer's version of evolutionary agnosticism.

2. Evolution and Progress

There is another aspect of Spencer's philosophy which is still worth examining: its quite ambiguous support of the theory of continuous progress. All that his evolutionism can strictly guarantee from its deductive basis is the persistence of force, which means the persistence of relations among forces, together with the transformation and equivalence of forces in a Newtonian system. This accounts for the highly qualified manner in which he describes the evolutionary formula: "The re-distribution of the matter and of its retained motion, is from a relatively diffused, uniform, and indeterminate arrangement, to a relatively concentrated, multiform, and determinate arrangement."[14] The evolutionary trend is a relative one, because it is limited in principle by the equally basic movement of dissolution. The play of forces is a constant making and unmaking of the material order, with a probable tendency toward a total equilibrium of forces. As to whether we can state categorically that the cosmic process must terminate in a total extinction of all changes, Spencer maintains that this question concerns something ultimate and hence belongs in the realm of the unknowable. A universal quiescence is a possible outcome but we cannot show it to be inescapably necessary. There is also an open possibility of indefinitely continuing the cycle of renewal and destruction, integration and disintegration, concentration and dispersion.

Spencer assures us that he himself leans toward the latter alternative. But he does so only as a matter of belief and reasonable inductive inference from organic and human development. The difficulty is that the hope for an indefinite alteration cannot be justified through any deductive argument from the persistence of force. According to Spencer's own methodology, therefore, his belief cannot acquire the standing of philosophical knowledge and cannot be regarded as a

[14] *First Principles*, p. 501; cf. pp. 484, 492-93, 505-06. S. F. Mason, "The Idea of Progress and Theories of Evolution in Science," in *Essays on the Social History of Science*, edited by S. Lilley (Copenhagen: Munksgaard, 1953), pp. 90-106, shows that evolutionary thought has given rise to various theories of progress, but he does not stress the anti-progress and cyclic inferences that have also been made from it.

necessary consequence of evolutionism. There must be an element of strong natural faith behind any theory of progress which appeals to the evolutionary philosophy of Spencer for support.

Even if we do accept this view, however, the aid it gives to progress is only relative and temporary. Strictly speaking, what remains possible within the context of the Spencerian persistence of force is not evolution alone but the conjunct law of evolution-and-dissolution, the indefinite alteration of the processes of forming and dissolving. As a demurrer against the necessity of a universal heat-death, evolutionary agnosticism can only offer the possibility of an everlasting cycle of making and unmaking of all the structures involved in human experience of the world.

This is the point which Friedrich Nietzsche seeks to drive home with the hammer blows of his doctrine on the eternal return of the same state of affairs.[15] He contends that Spencer is too timid to acknowledge that cyclic alteration is not just a likelihood but the essential law of the universe. And Nietzsche suggests that the reason for the hesitation is found in the social and historical consequences of a thoroughgoing cyclism. Once we have tasted the Judaeo-Christian hope for an open-ended conception of time and history, we are reluctant to embrace the full consequences of evolutionism-and-dissolutionism and cannot summon the courage to engage in human affairs within this framework. For Nietzsche, the superman is by definition the mind which can lucidly accept the graven law of a cyclic return of everything to the same point and nevertheless work energetically within the present span of time.

Spencer and the so-called Social Darwinists in England and America might reply to Nietzsche that he has overstepped the limits of phenomenalism in treating cyclism as an essential law of ultimate reality. But even within their own context, they would have to concede that Spencer's favorite slogan about the survival of the fittest provides no strict guarantee of the endless improvement of the stock and especially of human society through competition. From the phi-

[15] On Nietzsche's ambivalence toward Darwinism, cf. W. Kaufmann, *Nietzsche* (Princeton: Princeton University Press, 1950), pp. 126-27, 288-89. Nietzsche approved of its stress on universal change and man's animal origin, but he criticized it for not seeing that only a few choice spirits rise above the species level and for not facing up to eternal recurrence.

losophical standpoint, evolutionary social meliorism has to be qualified by the distinction between a short-range and a long-range estimate. Within the brief era of modern science and industry, Spencer can point out that the prevailing trend is a gradualist evolution and slow spread of organized altruism. But he admits that this era belongs within an enormously broader time scale and is likely to lead to a dissolutional phase of human history. Taking this cosmic perspective, he finds it difficult to avoid the conclusion that social progress will inevitably be undone and the achievements of cultural integration dissolved. His social drive works in favor of short-range improvement but his synthetic principles do not yield any philosophical confirmation of the faith in long-range progress.

More recent evolutionary thought usually regards the developmental process as being unique and irreversible, although not always as progressive. This is often due to a resonance of Christian faith or of a natural faith in the significance of human history.[16] Another factor is the refusal of many biologists, anthropologists, sociologists, and interpreters of history to follow Spencer in seeking a deductive philosophical justification of their position. Thus they can avoid his quandary about whether or not to treat the irreversible and progressive view of time as a consoling parochialism holding good only within a limited reach in the biological and historical spans of time. Yet the consequence is that they do not share in Spencer's clarity about the noetic status of what he called the belief in progress as a beneficent necessity of the evolving cosmos. The contribution of Christian faith and of philosophically determinable evidence to this conviction has to be carefully weighed, if illusory interpretations of progress are to be discovered and eliminated.

As expressed in *The Descent of Man,* there are some unsettling features in Darwin's own theory which prevent any easy acceptance of automatic, universal progress.[17] In so far as he accepts the uniformitarian (rather than the catastrophic) reading of the geological record, he is anticyclical and supports an open movement toward ever

[16] The influence of natural and revealed faith is studied by J. Baillie, *The Belief in Progress* (New York: Scribner, 1951).

[17] Relevant sections from *The Descent of Man* are conveniently presented in the source readings edited by F. J. Teggart and G. H. Hildebrand, *The Idea of Progress* (revised ed., Berkeley and Los Angeles: University of California Press, 1949), pp. 448-53.

new forms of life. But he also criticizes a simplistic kind of progressionism which arranges all the forms of life in a single ladder of nature pointing climactically to man's perfection as the highest rung. The image of the ladder of nature does not necessarily involve a relation of descent among the arranged forms, whereas Darwin insists on the genetic descent of related organisms. Furthermore, his stress on the indefinite divergence of species demands a new metaphor, that of the continually branching tree of life, instead of the serial set of rungs along a single track.

These modifications have one further implication: Darwinism cannot enter into a simple alliance with the philosophical forms of the theory of progress popular during the eighteenth and nineteenth centuries. Both the physico-theologians and the Encyclopedists accept progress in the sense of a convergence of everything toward man and an indefinite perfectibility of man himself. For the Darwinian mind, however, man is one apex among many in nature, and he is an apex which is the genetic outcome of a development from simpler organisms. The latter do not merely point toward man and subserve his needs: they give rise to the human organism along one of the lines of descent, without depreciating other lines and other peaks. The biological evidence alone does not furnish distinctive grounds for constant improvement to be the law of man's history. Other sources of evidence about man must also be consulted, and then there is the task of evaluating several reports and not simply of construing the idea of progress as the massive and inevitable conclusion of scientific studies.

The plural lines of descent also make it difficult to integrate the biological with the current philosophical meanings of development. When the Romantic mind or the Hegelian dialectician or the Comtean positivist declares that nature is undergoing development, he implies that this process is tightly organized according to rational laws and that it is ultimately unified in a convergent development toward man. But the Darwinian evolutionists specify that the evolutionary mechanism depends on chance variation, natural selection, and indefinite divergence of species. This view of the precise means of biological development need not be incompatible with every sort of belief in progress, but it does not specifically furnish confirmatory evidence for the reign of rationality and the convergence toward

man's welfare upon which the prevailing philosophical conceptions of progress rested. The biological meaning for development cannot simply be equated with the philosophical sense elaborated by idealism and positivism, and hence a theory of man-centered progress is not an unavoidable corollary of biological evolution. The Social Darwinists clouded over this issue temporarily, but it was bound to reassert itself under less favorable social conditions and in a reflective analysis of the logic of Darwinian evolution.

Darwin himself concluded *The Origin of Species* with the hopeful picture of an indefinite progress on the part of all biological species, since they are not fixed in their present limits. But his recognition of the play of chance in nature and the interplay of complex nondirectional factors in the environment prevented him from giving unhesitant assent to progress as the intrinsic law of organisms and especially of human social life. In *The Descent of Man*, he did regard the progressive viewpoint as truer and more cheerful than that which centers on an original perfect state from which we have fallen, but he was aware of too many variable elements in human life to treat natural selection as a rigid law operating for social progress. The evolutionary tendency toward integration, complexity, and differentiation could not be interpreted as a constant improvement, unless one identified such trends with the evolutionary phase in Spencer's cycle of change. Then, however, one would also have to admit that the downward trend of cosmic force would eventually prevail over temporary advances of man and other organisms in a counter direction. This was the point of Huxley's disenchanting remark, in his notable Romanes Lecture on evolution and ethics, that "the theory of evolution encourages no millennial anticipations."[18] Rather, it was at the nonmillennial level or within the limited perspective of cultural history that there was some hope of forestalling for a while the completion of the full cosmic cycle of unmaking what natural selection and human art have made. Hence Huxley spelled out the condition under which evolutionary theory could be joined with a

[18] "Evolution and Ethics," reprinted in the joint volume by T. H. Huxley and Julian Huxley, *Touchstone for Ethics* (New York: Harper, 1947), p. 93. Even the positivist historian, J. B. Bury, was so impressed by Thomas Huxley's view that he admitted that evolutionary theory remains neutral and "lends itself to a pessimistic as well as to an optimistic interpretation."—*The Idea of Progress* (reprint ed., New York: Dover, 1955), p. 345.

belief in progress: only if a temporary dualism were maintained between the state of nature in its plenary scope and the restricted order of human art. This involved a philosophical consideration and a decision which could not justify themselves on the ground of being only a sheer extension of the findings of biological evolution.

The thorough ambivalence of the relation between biological evolution and belief in progress explains why the sharp decline of the latter in the twentieth century has not undermined evolutionary thought among biologists. The crisis in theories of progress brings out the need for distinguishing clearly between biological development and the philosophical meanings for development in nature and society. And if there is indeed a millennial aspect to the acceptance of progress, its roots are to be sought partly in the Christian faith and its providential conception of all cosmic change and human history.[19] The act of accepting some sort of progress in time and human history is never a simple and univocal act, having the same meaning for all minds. The theme of progress is a complex locus today where scientific, philosophical, and religious elements are conjoined in many different ways by the individual mind. At least, a study of the nineteenth-century biological evolutionists shows that the coming of Darwinism did not relieve anyone of the responsibility to sift these various factors critically before making one's personal evaluation of the problem.

3. Evolutionary Philosophy in America

The relation of evolutionary thought to physico-theology, agnosticism, and the theory of progress was primarily the story of its effect upon philosophies already in being. In migrating to America, however, it played a germinal role in forming and directing some new scientifically oriented philosophies. During the speculative doldrums of the decade 1850-60, it would have required a hardy prophet to say that America was on the threshold of a philosophical renaissance which would control the course of thought for the next century. That this quickening did actually occur was due in large measure to the discussions aroused by the introduction of Darwin and Spencer to

[19] For the Christian and naturalistic background of modern millennialism, consult E. L. Tuveson, *Millennium and Progress* (Berkeley and Los Angeles: University of California Press, 1949).

our soil. Their stimulus upon the philosophical minds maturing from 1860 to 1890 was a major contribution to the development of pragmatism in its several varieties.

Our concern is not with the American Social Darwinists and their apology for competitive individualism, since these men were singularly barren in new ideas and methods for philosophy.[20] But amid the gusts of economic and social propaganda, a few men were engaged quietly in examining the basis of evolution and its implications for philosophy. During the eighteen-sixties and seventies, a group of Harvard men including Wright and Green, Peirce and James, Fiske and Holmes, met informally to discuss philosophical issues. Peirce liked to call them members of his Metaphysical Club, and in any case they were the seminal source of the pragmatic current of thought in America.[21] One of their major topics was evolution and the effect it would have upon the philosophical conception of man and knowledge and the universe. Historically considered, their approach to this nest of questions was unique in that they probed more fundamentally and critically into the philosophical meaning of evolution than did any other contemporary minds. And it can be added that the problematic character of evolutionism as a philosophical postulate was more vividly realized and objectively probed by these men than by their successors, many of whom tend to accord to it a dogmatic status which this pioneer group would scarcely countenance.

For our purposes, the key individuals are Chauncey Wright and Charles Peirce. Wright was affectionately called the boxing-master of

[20] R. Hofstadter, *Social Darwinism in American Thought* (revised ed., Boston: Beacon Press, 1955), discusses the vogue of Spencer, the ethical influence of Huxley and the reaction of James and Dewey. A broader account of evolutionary ideas in America is provided in the essays edited by S. Persons, *Evolutionary Thought in America* (New Haven: Yale University Press, 1950), especially the chapters on the rise of evolutionism and its effect on ethics and theology.

[21] The best study of this group is P. P. Wiener's *Evolution and the Founders of Pragmatism* (Cambridge, Mass.: Harvard University Press, 1949). Also informative are the briefer accounts by H. W. Schneider, *A History of American Philosophy* (New York: Columbia University Press, 1946), pp. 321-437, and by M. H. Fisch, "Evolution in American Philosophy," *The Philosophical Review*, LVI (1947), 357-73. The two latter authors stress the application of evolutionary ideas to man, whereas the viewpoint of the present study is directed toward the underlying problems in methodology and causality which remain lively issues today. For the rearguard action of the older Scottish school, see J. McCosh, *The Religious Aspect of Evolution* (revised ed., New York: Scribner, 1890).

the group, since they all had to face the challenge of his bold analyses and his project of assessing Darwin and Spencer in the light of Mill's logic of the sciences. His contribution lay precisely in the resolve not to play favorites with evolutionary speculation but to submit it to the ordinary canons of scientific method. Whereas Spencer, Haeckel, and lesser popularizers had uncritically used Darwin's theory to advance their own sprawling cosmological views, Wright recommended a reflective methodological study of evolutionary theory to determine its proper scope and its relation to philosophical topics. In carrying out this program, he made a devastating criticism of Spencer and succeeded in detaching the Harvard group from the synthetic philosophy long before it reached completion and full popular acceptance.

There are four main points in Wright's critical analysis of Spencer: the nature of principles, the meaning of force, the inductive use of examples, and the relation of scientific method and metaphysics.[22] (1) Spencer plunges directly into the work of grinding out philosophical principles for the several sciences, without stopping to inquire whether evolution or any other principle can have the same meaning in science and in philosophy. The working scientist regards a principle as an eye for looking beyond itself at some regularities discoverable among concrete events, but he does not regard a principle as an active component in the events themselves. From this standpoint, Spencer and other uncritical evolutionists mistake the tool for the handiwork. They disclaim metaphysics and yet they make their evolutionary principles function as constitutive causal agencies in natural process itself.

Another trait of a scientific principle is its definite and revisable relation to what we can experience. Granted that it enjoys some relative stability and universality, still as a working scientific tool it never completely divests itself of its role as a leading question, as a scaffolding which will eventually give way after serving in some definite capacity. But Spencer treats the persistence of force and evolution as completely definitive, nonhypothetical principles whose deductive range reaches to the entire universe. His justification is that

[22] His core ideas on science and evolution are available in *The Philosophical Writings of Chauncey Wright*, edited by E. H. Madden (New York: Liberal Arts Press, 1958), pp. 12-42.

these principles express in abstract and generalized form the ultimate phenomenal truths about the process of things. Yet this supposes that a definitive understanding has already been reached in the major sciences and hence that the only further need today is for principles which are summarizers of a complete and universal truth. Even within the framework of classical physics, however, Wright can point out that there are areas for fundamental research and hence principles in the more typically scientific sense of interrogators of nature or investigative leads for uncovering new aspects of nature.

Spencer never establishes in detail the transition from principles in this latter sense to his own philosophical notion of principles as abstract summarizers of a fixed totality of knowledge. In the scientific context, the evolutionary principle does not cease to be open to revision and deep modification of its import, regardless of the philosophical mansions built upon its meaning at some given stage of biological research. Wright does not dispute the need for abstract and broadly formulated principles in science, but he does insist that their purpose is rather to open our minds to new problems and observations of concrete events than to serve as deductive premises for a set of incorrigible truths about all events and relations in the cosmos.

(2) Spencer defends his distinctive philosophical use of the evolutionary principle on the ground that it is strictly deducible from the persistence of force. His further remark that "persistence" is preferable to "conservation," since the latter signifies a causal substrate or ultimate conserving source, rouses Wright's suspicion. Either Spencer does not grasp the Newtonian physical-system meaning for force or else he is using physical terms in an equivocal way in order to profit by the prestige of physics, but without assuming any of its methodological limitations. Anticipating Bergson's line of attack, Wright notes that in all his multivolumed enterprise Spencer fails to supply any extended account of physics itself, so that we may follow the steps in transforming the physical concepts of force, energy, and conservation into the deductive basis of the synthetic philosophy. Instead, he fuses many different meanings for "force" into a nebulous concept whose scientific grounding cannot be tested in any specific way.

> To all the ideas which he [Spencer] adopts from science he adds a new sense, or rather a vagueness, so as to make them descriptive of as much as

possible. . . . Out of mathematical formulas these terms lose their definiteness and their utility. They become corrupting and misleading ideas. They are none the less abstract, but they are less clear.[23]

The subsequent preoccupation of the pragmatists with finding ways of making our ideas functionally clear stems partly from a resolve to avoid such irremediable cloudiness. Wright's immediate conclusion here is that the first principle from which Spencer deduces his evolutionary law is hopelessly vague and hence cannot supply any scientific warrant for converting the biological notion of evolution into a full-blown philosophical evolutionism.

Spencer's law of evolution may be a consistent necessary consequence of his own notion of force, but there is no way to trace a scientific ancestry for the latter. Wright suggests that it may be an original expression of Spencer's subjective interests and aspirations toward system-building, but then its import is emotive and not scientific. Once the principles of evolution and persistence of force are wrenched from a definite context of predictive hypotheses, experimental situations, and mathematical formulas, they enter the realm of scientific unknowables. We should therefore be just as prudently agnostic about them in their philosophical use as Spencer is about the nature of the unknowable absolute.

(3) A defense of Spencer might be made by appealing to his inductive procedure of citing examples of evolution from many sciences. In reply, Wright notes that, with the exception of a careful report of von Baer's work in embryology, his examples are loose restatements ranging from the nebular theory to the history of Roman laws. Spencer has a penchant for concentrating his inductive materials in such areas as the formation of the stars and the transition from the inorganic to the organic, areas where our present knowledge is most problematic and open to further revision. Furthermore, there is a decisive difference between the scientific effort of *universalizing* a position through deductive prediction and empirical verification and the Spencerian method of *generalizing* scientific data by means of noting loose similarities and then capping them into a law for the cosmos. The evolutionary law is the result of such a generalizing process. The references to increasing heterogeneity and integration

[23] *Ibid.*, pp. 24, 25.

evoke many analogies, but they do not permit of any determinate testing for validity. In this respect the philosophical use of evolutionary analogies is just as loose as the watchmaker analogy of the physico-theologians.

Once more, then, Wright returns to the question of the source of the philosophical idea of evolutionary change. He grants that this idea exerts a powerful influence upon the contemporary mind and serves an effective unifying function. But in this highly generalized and analogical form, its source is to be found in the human mind's inclinations and dreams rather than in biological research. It is the outcome of transforming the limited Enlightenment belief in social progress into a universal belief in the progress of the whole universe. Using Mill's distinction between what we know by inductive belief and what we hope for through imagination, Wright assigns philosophical evolutionism to the latter point of origin. He attributes the powerful belief in evolutionism to the operation of "the moral and mythic instincts," to our human need for some kind of moral faith and mythopoeic imagery with which to interpret the universal fact of process in the world.[24] This does not necessarily mean that the evolutionary outlook is illusory but only that it is something other than a continuous expansion of the biological theory of evolution or a rigid deduction from some wider physical principle. The philosophical principle of evolution is not founded on the natural sciences but reflects the moral hope and esthetic imagery of man, when he seeks to deal with process as though it means universal progress.

Wright thinks that some sort of teleology is unavoidable for an effective belief in evolutionism. It need not be the kind which supposes that all events minister to human happiness. Evolutionism is teleological by the fact that it views all events as constituting a complete and intelligible order, operating under a few original and unchanging laws. "Teleology does not consist entirely of speculations having happy *dénouements*, save that the perfection or the end to which the progress tends is a happiness to the intellect that contemplates it in its evolution and beauty of orderliness."[25] Wright is no more antagonistic than Kant or Mill toward such teleology, as long as it openly acknowledges itself to be built upon moral faith rather

[24] *The Philosophical Writings*, p. 21.
[25] *Loc. cit.*

than scientific knowledge of nature. But whereas Spencer would like to limit the play of hopeful imagination to his preference for the evolutionary part of the evolution-dissolution cycle, Wright extends the mythic factor to the very heart of the evolutionary law as a synthetic principle in philosophy.

(4) Underlying Wright's entire polemic is his aim of keeping modern science and philosophy distinct. In criticizing Spencer, he does not detract either from Darwin's own scientific work or from the need for philosophical inquiries. Yet he does stand for what he variously calls the *neutrality* of scientific method or the nihilism of modern science.[26] By these expressions he means that modern science is primarily a methodological discipline and that from its procedures and findings no consequences can be drawn for cosmology, metaphysics, ethics, and religion. Issues which belong properly in these fields cannot be given a definitive solution by appeal to biological evolution or any other scientific theory, no matter how far it is generalized.

As a scientific concept, evolution must be restricted to biology and some physiological aspects of psychology, along with the social growth of language and law. The claim for universal explanatory significance of evolutionism is not continuous with or supported by the biological position. The latter is too intimately bound up with the concrete data, problems, and hypothetical procedures of biology to permit its controlled transformation into a first principle of philosophy. And similarly, the leading concepts in physics are too closely specified by the mathematical formulas, predictive statements, and experimental situations in that area to furnish a deductive basis from which a philosophical law of evolution might be derived. This is the sense in which scientific thinking must preserve its neutrality in the face of all efforts to use its results for the resolution of philosophical issues. And if the philosopher derives the courage of his convictions

[26] C. Wright, *Philosophical Discussions* (New York: Holt, 1878), p. 403; R. B. Perry, *The Thought and Character of William James* (2 vols., Boston: Little, Brown, 1935), I, 524-28, and II, 718-21. Perry gives an interchange between Wright and William James on the former's nihilism of scientific method. Here as everywhere in treating of American philosophy since 1860, we have to return to the documents provided by Perry on James and the men surrounding him. Perry devotes a chapter (I, 474-93) to James's criticism of Spencer's "tea-table elysium" and "orgy of ambiguity," as well as James's position that the evolutionary origin of man is acceptable as long as it allows for the mind's originality and freedom.

only from invoking a scientific sanction for them, then Wright is ready to admit that science turns a nihilistic face toward such a project.

Owing to his grasp on the pluralism of scientific methods and the contextual meaning of scientific concepts, Wright remained skeptical toward the attempt of evolutionism to use biological theories as premises for metaphysical and moral inquiry. He granted the legitimacy of questions about God, duty, and a final end, but rejected the plan of answering them agnostically or otherwise through a philosophical generalization of scientific evidences and concepts. On this resolute neutrality of modern science, he appealed to Francis Bacon and might have added the testimony of Cardinal Newman. The last essay from his pen was a critique of "German Darwinism" or the attempt of Haeckel and others to metaphysicize the theories of evolutionary biology in favor of doctrinaire materialism and monism. In treating the scientific construct or realized abstraction "*as if* it had a meaning independently of the things which ought to determine the true limits and precision of its meaning," such philosophical exploiters of evolution really build their systems upon the fallacy of misplaced concreteness (to use Whitehead's phrase) rather than upon the facts and theories of biology.[27]

Wright is at his best when on the offensive against evolutionism rather than when engaged in constructive philosophical work. In philosophy, he accepts the consequences of strict phenomenalism concerning speculative issues and prefers to reformulate philosophical problems in terms of practical reason and moral belief. It is here that Peirce's handling of the evolutionary theme becomes significant, since he does attempt to draw some speculative philosophical significance from evolution without relaxing the stringency of scientific method. He cannot avoid a clash with Wright over this issue, since he proposes a philosophical treatment of evolution that will accord with the scientific method and yet avoid Spencer's loose-jointed use of force and differentiation.

As an opening wedge, Peirce suggests that there are two ways of taking the neutrality of science. The closed sense preferred by Wright is that the methods and concepts of science can in principle

[27] C. Wright, *Philosophical Discussions*, p. 400.

have no consequences bearing upon the nature of things. But this is a definitional closure of inquiry. It is not imposed from within by scientific method itself but is stipulated for it from without by acceptance of phenomenalism. The latter is a philosophical position and should not be allowed to dictate the basic scope of scientific inquiry. Wright is properly concerned to preserve the freedom of research, but this can be done satisfactorily by the methodic refusal to settle inquiry by appeal to authority. The phenomenalist postulate is either an instance of interference by authority or else is an otiose view with which scientific intelligence can readily dispense. Inquiry can reflectively discover its own method and limits, without accepting interference from the prejudgment of phenomenalism or any other extrinsic authority.

Thus Peirce recommends a second or open meaning for the neutrality of science: It must conduct its inquiry without any interference from other sources and without any advance stipulation about the ways of being and the limits of knowing. Whether or not we can use the method and findings of science to obtain some knowledge of general structures and laws in nature must be left for the actual outcome of the effort to determine. Peirce holds that we can develop some metaphysical implications through the pragmaticist analysis of scientific procedures. And evolution is one of the cardinal points of departure for such an exploratory work.

Peirce often refers to the great upheaval in scientific thinking caused by Darwin.[28] This new influence is not only a cultural fact but also has a revolutionary philosophical significance. Darwin's ideas cannot be accommodated within the conventional British framework of empiricism and mechanistic determinism. The weakness of Spencer and other previous evolutionary philosophers lies precisely in failing to recognize that Darwin has brought about a major shift in

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[28] *Values in a Universe of Chance: Selected Writings of Charles S. Peirce (1839-1914)*, edited by P. P. Wiener (Stanford: Stanford University Press, 1958), pp. 148-49 (against Spencer), 263, 268. Wiener's selection of materials is excellent for studying Peirce's views on scientific method and evolutionary philosophy, and will be referred to hereafter as *Values*. Most of the sources can also be found in vols. 1, 5, 6, and 7 of *Collected Papers of Charles Sanders Peirce*, edited by C. Hartshorne, P. Weiss, and A. Burks (8 vols., Cambridge, Mass.: Harvard University Press, 1931-58). A close analysis is given in the chapter on Peirce in Wiener, *Evolution and the Founders of Pragmatism*, pp. 70-96.

our view of nature. Peirce pinpoints the precise locations where the evolutionary perspective calls for a radical criticism of the pre-Darwinian outlook in philosophy. As far as classical empiricism is concerned, evolution represents a challenge to its nominalism and its epistemological individualism. As for a mechanist philosophy, its determinism and reductive tendency must give way before the fresh insights of evolutionary thought.

In attacking the nominalist character of British empiricism, Peirce is sufficiently confident to state his case in the form of a dilemma that one must be either a nominalistic individualist or an evolutionist.[29] For if there is any summary statement of the evolutionary conception, it is that our universe is witnessing a growth in generality or the formed regularity of structures and functions. Genetic explanation is based upon factors of comparison and continuity among individuals in an organic group, showing that there is a real, effective foundation in natural things for general laws and relations. The evolutionary mode of inquiry is also incompatible with the epistemological bias of empiricism toward the isolated individual perceiver. On the contrary, evolutionary studies concentrate upon the individual-in-context, upon the organism already really related to its existent, active environment and the rest of the species, and not merely to its private impressions. Many classical puzzles of the empiricist theory of knowledge are bound to become artificial and irrelevant in a world which recognizes the reality of general laws and the open presence of mind to a real order of natural beings.

Even before the era of relativity theory and quantum mechanics, Peirce was using evolutionary considerations to criticize the deterministic basis of strict mechanism.[30] Together with Wright, he pointed out the significant use of the statistical notion of scientific law in Maxwell's theory of gases, in population and historical studies, and in Darwin's biological work. Evolutionary research was facilitated by taking a new view of laws of nature as being capable of formulation in terms of probability statements. Taken along with Darwin's stress on chance variation, this method indicated how thorough had

[29] *Values*, pp. 299-300; cf. 81-84. Hume is outmoded by evolutionary thought, since his standpoint in the isolated perceiver cannot explain either the evolving patterns in nature or the social development of science itself. Whitehead would accept Peirce's criticism of Hume.

[30] *Ibid.*, pp. 94-95, 174-78, 247.

to be the revision of the total determinism of events as pictured in the mechanist philosophies based on classical physics. Peirce maintained that scientific laws are regular, but with limits set on the exactness and universality of what they can predict. We have to recognize the presence of real contingency and the chance factor in natural process, as well as in our scientific means of explanation. Ours is a universe having the mixed condition of *law-along-with-chance* rather than a pure state of complete determinism or utter chaos. A philosophy which formulates evolutionary laws without respecting these limitations is engaged in the hopeless task of pouring new wine into bottles that are already cracked open and discarded in biology.

The reductive tendency of philosophical mechanism is also brought under fire by Peirce. Once we become thoroughly imbued with the genetic approach of evolutionary thought, we also become dissatisfied with the attempt to reduce all events to the uniformity of nature and to treat uniformity as an ultimate, inexplicable fact. The subjective counterpart of this reductionism is Hume's appeal to custom and the laws of association as ultimate and unanalyzable principles in the mental order. From an evolutionist standpoint, we may reasonably expect that the uniform aspects in nature also have a history, that they too have a genesis. The uniformity of nature is not an ultimate fact but an achievement which is still in process of being brought about.

If we take a fresh look at the world, instead of floating along on the tide of conventional mechanism, we are impressed that "everywhere the main fact is growth and increasing complexity."[31] The variety and diversity and constant growth of kinds of things reveal the presence of spontaneity at the heart of nature, as Darwin himself had suggested in his law of constant divergence of species. There is objective chance in the sense of variescence or the collective tendency to variableness. Peirce has his own doctrine of tychism or recognition of the inexpugnable chance factor in the universe, but he also warns against forgetting the inductive basis for the affirmation of chance and thus paying superstitious homage to it. Used in a critical way, however, the stress on spontaneity and chance as real ingredi-

[31] *Values*, p. 174; cf. pp. 217, 429.

ents in things helps us to see the developmental character of natural laws or the evolutionary tendency toward stable patterns of activity. Far from being a brute, unanalyzable postulate, the uniformity of nature is genetically intelligible as the drift toward law, the tendency of the universe to increase the habit of regular and generalized modes of action.

After using evolutionary ideas to undermine nominalism, empiricism, and mechanism, Peirce then employs them in constructing his own cosmogony and metaphysics. His evolutionary explanation

> would suppose that in the beginning—infinitely remote—there was a chaos of unpersonalized feeling, which being without connection or regularity would properly be without existence. This feeling, sporting here and there in pure arbitrariness, would have started the germ of a generalizing tendency. Its other sportings would be evanescent, but this would have a growing virtue. Thus, the tendency to habit would be started; and from this with the other principles of evolution all the regularities of the universe would be evolved.[32]

This account is offered as a probable hypothesis requiring future verification, not as a demonstrative proof. One of Peirce's critics, Arthur O. Lovejoy, has objected that we never could verify the initial condition of pure spontaneity without introducing determinations into it, and that there would be no reasonable ground for expecting an initial condition of promiscuous diversity ever to develop a tendency to depart from purely random variations. But Peirce suggests that his evidence is not to be sought by dreaming oneself back to an evolutionary start but rather by analyzing the presently experienced variety, random tendency, and uniformity. And he describes the original indeterminate state not as a homogeneity but as a heterogeneity of indefinite specifiability, virtually involving in its dynamism two tendencies which we can actually see in our world: that toward novelty and that toward continuous formation of laws. The latter is a growing tendency, however, so that the laws and regularity now prevailing are themselves an evolutionary achievement.

Peirce is now prepared to give a thoroughly evolutionary definition of what the scientist calls a law of nature.

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[32] *Ibid.*, pp. 158-59. A. O. Lovejoy's criticism is found as Appendix E, in Wiener's *Evolution and the Founders of Pragmatism*, pp. 227-30. Peirce had already replied to Paul Carus' similar objection by noting that the initial condition is "an indefinite specifiability, which is nothing but a tendency to the diversification of the nothing." —Peirce, *Collected Papers*, 6.612.

So, then, I do not think a better definition of a *law of nature* can be given than this: it is a foreknowing generalization of observations. This said, the question is instantly started, How can the reason of a man attain such foreknowledge? How shall we answer? Must we not say that the fact that he can so attain proves that there is an energizing reasonableness that shapes phenomena in some sense, and that this same working reasonableness has molded the reason of man into something like its own image?[33]

This is a pregnant text for understanding the mind of Peirce and measuring the depth of his evolutionary way of thinking. He begins with a fact of scientific description: We do possess some knowledge that is inductive or observationally based, that involves a predictive factor, and that is held in a generalized form. In asking about the basis rendering this fact possible, he does not appeal to some permanent Kantian forms of the consciousness in general but rather to an evolutionary process of energizing and molding. Moreover, it is a growth in reasonableness, in so far as our world shows an increasing tendency to take on the characters of generality, continuity, and feasible form. They are the objective marks of law as a reasonableness energizing in the world, even though it is working under the limiting conditions of chance and contingency.

This growth of reasonableness is transpiring not only in the world but also in the human mind, to the extent that scientific inquiry is bringing it gradually more into responsive conformity with the living and developing pattern of generality in nature. Thus the evolution of law is a complex process occurring both in natural events and structures and in the scientifically progressing mind of man. The natural universe is just as thoroughly temporal and historical as is the human world. Far from regarding his theory of the evolutionary beginning and the genesis of law in nature as a hindrance to theism, Peirce employs the harmony developing between the reasonableness of things and that of human inquiry as evidence of God's effective and providential presence in the universe.

All of the main doctrines in Peirce's philosophy have an evolutionary significance. It permeates his theory of method, doctrine of

[33] *Values*, p. 291; cf. 300, 316. The context for this definition is an essay on "The Laws of Nature and Hume's Argument against Miracles," which, as the accompanying correspondence reveals, was composed under frustrating intellectual and financial conditions for S. P. Langley of the Smithsonian Institution.

the categories, cosmology, scientific ethics, and even his account of the history of science. The common evolutionary ambience for all the parts of his philosophy can be indicated even in a brief description.

Thus in his theory of scientific method, Peirce stresses the role of hypothesis-forming or abduction. It has a spontaneous aspect corresponding to the spontaneity in developing nature. Yet responsible hypothesizing is never arbitrary but seeks to bear in a relevant way upon the data and problems at hand, as well as to submit itself to a continuing public verification by the scientific community. This abductive search after increasingly relevant and verified hypotheses is an instance of the growth of reasonableness on the part of the human inquirer, more specifically on the part of the scientific community as a whole. There is a growth of law as a firm and continuous pattern both in natural events and in scientific research, although contingency and revisibility remain in force in both areas. The reason why Peirce thinks that his remarks on the habit-taking tendency in nature do not constitute a mere extrapolation of psychology is that he finds a common evolutionary structure governing the logic of abduction and the course of natural events.

His theory of the three basic categories remains obscure unless there is some reference to its evolutionary import. It takes a triadic form, not because of the influence of Hegel but because of the predominance of the evolutionary model taken from biology and the analysis of scientific method. Every situation can be analyzed into its genetic source, its finalizing aim, and its continuous approach toward that end. This provides Peirce with his primary categories of an indeterminate possibility or undifferentiated feeling, a generality of final structure, and a mediating process of habit-taking which generates the directional movement from source toward a generalized goal.

The basic categorial scheme can then be used interpretatively in cosmology and ethics. Since Peirce defines the real in terms of the trend toward increased regularity and embodied or steadied generality, he regards the evolutionary flow quite literally as a continuous realizing of the natural world. This realization process can be given a categorial analysis. For the becoming of things must involve three cosmic

traits: chance, the love and pursuit of generality, and the continuity of process between them.

Tychism or the doctrine on chance is an affirmation of the factor of spontaneity and contingency in all natural happening. Agapism or the doctrine on the love and pursuit of general structures defends the antinominalistic thesis that general factors are really present in nature and are constantly in course of being further actualized. And synechism or the doctrine on continuity seeks to explain the oriented character of the real as movement from the indeterminate to structured determinateness, from private feeling to publicly verified and commonly held knowledge. Peirce attaches these somewhat outlandish Greek names to his cosmological principles in order to signify a unique evolutionary standpoint which is reducible neither to the Hegelian dialectical triad nor to biological evolution apart from rigorous logical analysis of method.

He adds that agapism has a moral as well as a cosmic meaning, for it helps to define the purpose of human efforts. The pragmaticist or scientific philosopher must seek to embody generality or the network of regular and continuous patterns in his thought and action, corresponding to a similar tendency in nature. This is nothing less than saying that the well-disciplined mind finds its moral enthusiasm and direction in promoting evolution in the properly human sphere of mind, cultural response, and methodic control.

> Accordingly, the pragmaticist does not make the *summum bonum* to consist in action, but makes it to consist in that process of evolution whereby the existent comes more and more to embody those generals which were just now said to be *destined*, which is what we strive to express in calling them *reasonable*. In its higher stages, evolution takes place more and more largely through self-control, and this gives the pragmaticist a sort of justification for making the rational purport to be general.[34]

This text contains a correction of the pragmatism of James precisely by interpreting the aim of evolution in function of increasing generality rather than action. By anticipation, it also criticizes that

[34] *Ibid*, p. 199. Peirce retained several theories of evolution in order to account for the several ways in which science advances: by chance discovery (Darwin), by persistent habitual effort (Lamarck), and by the violent influx of new evidence upsetting the old habits of thought (Clarence King, the American geologist). Thus he gave a plurimodal evolutionary explanation of the history of science itself (*Values*, pp. 149-50, 257-60).

sort of existentialist stress which would divorce the existent from the reasonable and the general. As Peirce views the problem, to make such a divorce would be nothing less than to unmake the real and to reduce the existent to the purely possible, in a word, to strip man and the universe of their proper evolutionary tendency.

At the semicentennial celebration of Darwin's work held at Columbia University, John Dewey spoke on his influence upon philosophy. This is one of Dewey's most personally intended papers, since he himself was born in 1859 and made the pilgrimage from idealism to instrumental naturalism under the growing pressure of Darwinian thought. Especially the suggestions of Darwin and Wallace concerning human emotional and intellectual development sapped his confidence in the doctrine of an immanent absolute spirit as the source and standard of human life. Dewey's initial idealism was unsettled also by the juxtaposition of "origin" and "species" in the very title of Darwin's masterwork. This meant that the essential and the fixed were giving way to the temporal and the fluid in the biological and human worlds, as well as in that of physics. For Dewey, the chief significance of Darwin was to justify a universal extension of the genetic viewpoint and thus to banish everywhere in nature the notion of a fixed ladder of being or hierarchy of forms.

But Dewey himself went on from the continuity and genetic descent of species established by evolutionary biology to urge that the process constitutes a self-sufficient whole of nature and excludes as meaningless the problem of the being and providential care of a God distinct from evolutionary nature. "Once admit that the sole verifiable or fruitful object of knowledge is the particular set of changes that generate the object of study together with the consequences that then flow from it, and no intelligible question can be asked about what, by assumption, lies outside." [35] This methodological restriction of meaningful issues to events in change was a philosophical addition made on Dewey's own responsibility to clear the way for his naturalistic theory of man and experience. This is clear from the weight he imparted to the operative phrase "the sole verifiable or fruitful object of

[35] J. Dewey, *The Influence of Darwin on Philosophy and Other Essays in Contemporary Thought* (reprint ed., New York: Peter Smith, 1951), p. 14. See M. G. White, *The Origin of Dewey's Instrumentalism* (New York: Columbia University Press, 1943), pp. 109-25, on his early struggle with evolution.

knowledge." From Darwin's cautious agnosticism, he could not gather any such general and restrictive pronouncement about the object of knowledge, but only a description of what constitutes the business of the biologist.

Both Peirce and Dewey engage in methodological and metaphysical generalization on the theme of evolution. But in the former case, it is clearer that a distinctive philosophical analysis is being made and a new hypothesis being proposed for common testing. Dewey tends to consolidate his naturalistic interpretation with the biological meaning for evolution and evolutionary research, as though naturalism in philosophy is only a further chapter in the same line as the biological findings. Hence his account of Darwin's significance is more instructive as the story of how a new attitude in philosophy is born in a Darwinian atmosphere than as the strict justification of how this philosophy comes to close off an entire area of inquiry as being without meaning.

4. Bergson and the Methodology of Evolutionism

Among the more prominent twentieth-century thinkers who can be regarded as philosophers of evolution are Samuel Alexander, Alfred North Whitehead, and Henri Bergson. The theme emerges with purity and dominance in the mind of Bergson, but in the other men it is blended with many other considerations, especially those arising from relativity theory and the search for a world of values. Here, we can confine ourselves to a brief examination of some aspects in Bergson's philosophical position. It remains closer to the biologist's approach to nature and to the actual shifts in evolutionary theories, without surrendering the human significance of the genesis of life.

We have already mentioned Bergson's criticism of the concept of force in Spencer's system. As a beginner in philosophy (the Bergson centenary is also in 1959), he thought that Spencer was basically sound and needed only to be provided with a more rigorous mathematico-mechanical notion of force. But to his surprise, Bergson soon found[36] that even this addition was insufficient to close the gap between the Spencerian formula for change and change as we experience

[36] H. Bergson, *The Creative Mind* (New York: Philosophical Library, 1946), pp. 10-13; H. Bergson, *Creative Evolution* (New York: Modern Library, 1944), pp. 395-402. The latter work concludes with a criticism of Spencer's mechanist or extrinsic method

it in its temporal reality. And since time is of the essence for every evolutionary theory, Bergson had to look for another way of bringing a philosophy of evolution into conformity with our temporal experience. His original contributions in philosophy arose from this need to provide a more adequate generalized theory of evolution than any which was based on the notion of time in classical mechanics. In his sensitivity toward the limitations of the Newtonian outlook not so much on physical grounds as those of human experience, he resembled Peirce.

What is inadequate about the ordinary notion of time which is found in most of the uncritical conceptions of evolution? The fact that it is modeled after the concept of space, that it is only an echo of spatial conditions. We tend to conceive of time as a series of point-instants which stretch out homogeneously in a line, one discrete instant succeeding the other in a set groove, like raindrops rolling down a gutter. Bergson does not maintain that this spatializing of time is false or useless: it does serve the practical purpose of scientific prediction and control. His criticism is directed against erecting this practical purpose into the sole norm for our thinking about time. If we do so, we fail to respect the biologist's report on the inner spontaneity, continuity of action, and speciating divergence of temporal organisms. Above all, we fail to do justice to our own experience of temporal duration which refuses to conform with the spatial pattern of points on a pre-existent and fully determined linear course. Any notion of time which is in discrepancy with these approaches to temporal duration cannot be used in a reliable philosophy of evolution. The negative conclusion is that we will have to refrain from using the physicalized view of time in our description of evolutionary process.

Bergson thus involves himself in the recurrent problem of how to make a warranted generalization of evolutionary traits set forth in biological research. His answer is given in the methodological resolve to deal with evolution as far as possible within a humanly

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and an affirmation of Bergson's own internal method. "It is within the evolutionary movement that we place ourselves, in order to follow it to its present results, instead of recomposing these results artificially with fragments of themselves. . . . It is the study of becoming in general, it is true evolutionism and consequently the true continuation of science" in the Bergsonian philosophy of duration.—*Creative Evolution*, p. 402.

experienceable context and to resist explaining away the data of that experience in terms of anything else. The biological findings of Darwin and his successors do not arrange themselves automatically into a philosophical doctrine on the evolutionary nature of life. The only route for attaining a cosmic meaning of evolution is by close study of our human experience of duration, not because we fear dehumanization but because we can perhaps find the general nature of the evolutionary process as it is brought to conscious awareness in man.[37] For Bergson, it is not a question of anthropomorphizing evolution but rather of seizing it as an ongoing process in the region where it is most accessible to us: in our experience of the self as a spontaneous durational act. The details of Bergson's account, in *Creative Evolution,* of the branchings of the various evolutionary lines are ultimately not as important as his presentation of the *methodological* problem. Some of the more recent philosophical treatments of evolution seem to be more placidly inevitable than his, but this is often due to their way of gliding over the crucial point of how to develop the concepts of biological evolution into a reliable and illuminating philosophy of evolution.

Unlike most proponents of evolutionism, Bergson is uneasy about the procedure of interpreting the evolutionary process in terms of either classical or relativity physics.[38] He is unable to make the kind of synthesis which Alexander and Whitehead regard as inevitable between the evolutionary and the physical standpoints of our age. His difficulty stems not only from the problem of physicalized time but also from the nature of human experience stipulated within the physical system. In Newtonian physics there is an absolute system of reference, and once the privileged observer is installed therein, it is indifferent to him whether other real observers exist and whether his own experience contains anything beyond the data relevant for the system itself. In relativity theory, the given real observer supposes

[37] Scholastic critics were sometimes arguing at cross purposes with Bergson, since his doctrine on intuition and more fluid concepts was not inspired primarily by anti-intellectualism in the broad meaning of intelligence but by a positive effort to reach the heart of evolutionary reality through an attention to life in its temporal course. "The movement will not be grasped from without and, as it were, from where I am, but from within, inside it, in what it is in itself."—*The Creative Mind,* p. 188.

[38] Bergson has been criticized for his remarks on relativity theory, but sometimes without seeing that his main purpose was to show that present physical theory neither supports nor attacks his philosophy of evolutionary duration. Cf. *ibid.,* pp. 301-03, n. 5.

that other systems of reference are occupied by other observers, but he does not have assurance of their actuality and his own interest does not extend beyond the requirements for space-time predictions.

But Bergson requires of the inductive basis for an evolutionary philosophy that it consist of the self-experience of several actual individuals, that it faithfully report these individuals' durational reality in its own being and not simply as a function of the space-time system, and that it seize upon the direction of life. Such conditions cannot be met by the abstraction called the physical observer but only by the concrete man in his reflective durational experience. Thus the Bergsonian intuition of duration is not intended as a flight from intelligence or from ordinary experience; it is the methodologically unavoidable instrument for gaining the sort of inductive data which can be generalized into an evolutionary philosophy.

What Bergson encounters in his interior exploration of lived duration is the vital impetus or the struggle of freedom moving in a spiritual direction toward God and against the eddies and obstacles of matter. This result has never appeared very convincing to biologists. In his Eddington Memorial Lecture, the pioneer geneticist R. A. Fisher rejects Bergson's vital impetus as a piece of mythological dualism which explains none of the particular evolutionary phenomena.[39] Bergson would have to admit that we cannot derive any statistical laws of gene mutation from his position and that it does not provide guidance in setting up a biological experiment. However, he would probably add that its purpose is not to render the biologist's initiative superfluous but to state some general and yet concrete meaning for the life process.

His plane of approach can be appreciated by considering the twofold sense in which Fisher himself admits a valid meaning for "creative evolution." It signifies effective causation, along with the achieving of new and important results through the activities of living beings. The philosophical problems concern both the nature of the causation common to all living things and the meaning to be assigned

[39] R. A. Fisher, *Creative Aspects of Natural Law* (Cambridge: the University Press, 1950), pp. 4-6 (his meaning for creative evolution), 6-11, 14-15 (on Bergson). Fisher is more sympathetic toward the holistic doctrine propounded by J. C. Smuts, *Holism and Evolution* (London: Macmillan, 1926). Smuts deliberately left the philosophical elaboration of his position to others, however, and hence did not face the full brunt of the evolutionary problem at the level of methodology.

to the judgment that a certain achievement is important. Bergson's suggestion is that our durational activity conveys a common meaning for evolutionary causation which is not reducible to statistical statement and spatial imagery. Furthermore, a philosophical signification for what is important in evolutionary activity can be obtained by including a reference to our own maximal becoming in the direction of freedom and spiritual self-possession. This result is meager enough, but Bergson will insist that anyone who is searching for the philosophical meaning of evolution must at least proceed in this way for his answer.

Bergson was engaged neither in deducing the genetic theory of life nor in answering the questions of classical metaphysics. His chief concern was to determine how we can establish the wider implications of evolution. His approach through our experience of duration was inevitably psychological, so that he came to regard matter as sluggish imagery and to defend evolutionary progress by appeal to memory as a prolonging into the vital present. Within his own context, there are two further methodological questions which have to be formulated more clearly than he saw fit to do. Does biological evolution in fact contain any quite general metaphysical implications about the whole cosmic process and the full sweep of the nature of life? And if so, does our human experience of temporal duration and freedom lead to the core of the vital process or only to a special case, which is too narrow for such generalization? Philosophers of evolution answer the first question in the affirmative, but the sense is that here is a program to be tried out so that we can eventually test it by the results of particular efforts to reach the general meaning of evolution. This leads at once to the problem of method, and on this score Bergson presses hard for our taking reasonable advantage of our own reflective presence in the evolutionary field. Even after this is faithfully done, however, the difficulty remains of correlating the distinctively human meaning for vital operations with those which the biologists and other workers gather through their own methods.

5. Three Idealistic Appraisals of Evolution

Not all the young idealists followed Dewey supinely into disillusionment with their metaphysical position and eventual repudia-

tion of the main tenets of idealism. There were at least three types of idealistic response which involved no capitulation to naturalism but rather a vigorous effort to welcome Darwinism within the mansions of idealism. Royce's method was to engulf the whole evolutionary doctrine within the capacious arms of the absolute self. On behalf of a more personal idealism, Howison stressed the limits of evolutionary explanation in respect to the human self. And more recently, Harris has used the resources of the logic of science to reinstate an idealistic basis for the evolutionary view of things.

Josiah Royce testifies to the powerful challenge of evolution by devoting the entire second half of *The Spirit of Modern Philosophy* to this question. His first aim is to explain historically the eager acceptance and rapid application of Darwin's ideas. They could not have been so readily assimilated in the earlier periods of the rationalist static dualism of mind and body or the equally static skepticism of the empiricist mind, but only in the idealistic phase of modern philosophy. Schelling and Hegel have accustomed us to think of the spiritual absolute as being in constant development, to view nature as alive with this divine presence and process, and to approach all special problems in terms of the history of the subject in question. Thus idealism has tilled the soil for the enthusiastic welcome given to evolutionary views.

Royce is not blind to the defects in the view of nature found among the German idealists. No naturalistic critic speaks more bitingly than he about the grotesqueries of the Romantic and Hegelian philosophies of nature. But he locates their failure not in their metaphysical principles but in their inability to adhere rigorously by these principles in treating of empirical events. Granted that the source and subject of the orderly course of phenomenal objects is the infinite self or absolute spirit, it does not follow that our ideas under the conditions of human limitation are perfect enough to provide an *a priori* deductive basis for the study of nature. The mind of the idealistic philosopher is itself in process of growth: it requires a temporal process to discover the manifestations of the absolute self. Hence the well-disciplined idealist must accept the phenomena of nature as they come, forswearing any impatient schemes of anticipating their meaning by the manipulation of a symbolism or a dialectic.

Yet the idealist also possesses another perspective on nature, based on his confidence that

> the Self is as truly present in evolution as he is in sin and ignorance. These are the World-Spirit's garments that we see him by . . . [but] only after a patient scientific scrutiny has revealed, as is the case with the doctrine of evolution, a vast unity in a long series of phenomena. . . . I rather delight in this craft whereby the Self thus hides its true nature in energetic nebulous masses and in flying meteors, pretends to be absent from the inorganic world, pretends to have descended from relatives of the anthropoid apes, pretends, in short, to be bounded in all sorts of nutshells.[40]

The very thoroughness and comprehensiveness of scientific evolutionary research raise the further question of the principle of unity for the whole series of living things. The Roycean reply is that all vital phenomena are the garments or manifestations of the one absolute self, which synthesizes them into a meaningful pattern for our investigation. There is even a certain playfulness or pretense in nature, in so far as the empirical forms do not immediately reveal the presence of the infinite self but seem to hide it. This provides a challenge not only for the scientist, who must find some proximate pattern of rationality, but also for the philosopher in his quest for a general interpretation of the life process.

Royce takes a clue from Peirce on how to use some scientific notions as aids toward reaching a satisfactory philosophical account of evolution.[41] There is a describable common tendency in nature and human affairs to form aggregates or statistically definable groups, to exert some natural selection at the group level, and to form habits which strengthen some older aggregates and engender some new ones. Behind the biological theory of evolution lies the logic of *aggregates*. The evolutionary law is that there is fecundity in whatever unites for

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[40] *The Spirit of Modern Philosophy*, pp. 306, 307. The repetition of the word "pretends" is reminiscent of Hegel on the cunning of reason, as is the reference to sin and ignorance. For an adjustment of Hegel's theory of the contingent and irrational factors in nature with Darwin on the variability in natural selection, read D. G. Ritchie, *Darwin and Hegel* (New York: Macmillan, 1893), pp. 56-58.

[41] Royce develops these views in *The World and the Individual* (2 vols., New York: Macmillan, 1900-01), I, 501 ff., and II, 209-33, 315-23; "The Mechanical, the Historical and the Statistical," *Science*, N. S., XXXIX (1914), 551-66. He wants to demonstrate the idealistic hypothesis that evolutionary laws of irreversible processes *"are in their most general type, common to Matter and to Mind, to the physical and to the moral world."—The World and the Individual*, II, 218.

orderly cooperation. Persons and bodies share in the evolutionary trend in so far as they join in promoting the welfare of a community, whether it be a spiritual or a physical one. The reason for the prevailing pattern of the logic of aggregates is that it is the common way in which the absolute spirit expresses itself in nature and man.

To clinch the idealistic interpretation of evolution, Royce adds that all aggregates are serial order-systems, which are types of cosmic selves. Their internal principle of unity is the effective presence of some ideal which the individual members in the group or serial system are striving to realize. A self is simply a well-ordered series whose components are endeavoring to achieve a condition of activity and control through a continuum of evolutionary forms. Thus mountain ranges and biological species are cosmic selves having a different time span from each other and from the human individual self. Evolution is the pattern of interconnection and communication between these social order-systems, all of which are types of conscious processes of self-expression. Evolutionary law unifies all the aggregates on both a cosmic and an individual basis, thus enabling the absolute self to bring about the great community of material and spiritual agencies. The evolutionary law of self-representing aggregates is the means employed by the absolute to achieve continuity, similarity, and ultimately cooperative activity throughout natural and human history. Royce attaches to this interpretation of evolution the warning that it cannot be used deductively to establish or test the empirical theories in biology but only to give them a context of meaning and unity with the laws discovered for other order-systems in our universe.

While Royce was lecturing to his Boston and Cambridge audiences on how to incorporate evolution within the doctrine of the absolute, George Howison was building a case at the University of California for personal idealism against both evolutionary pragmatism and absolute idealism. He criticized the former position for its psychological use of evolution and its analysis of continuity in the universe. Instead of following Royce's absolutism of the infinite self, he found a basis in Kant and the inviolable human person from which to establish some limits for evolutionary thought.

Dewey had assumed that the *a priori* factor in knowledge is easily discredited by showing that our ideas and mental forms are the outcome of evolutionary process. Howison did not deny the legitimacy

of a genetic description of thought, but he stressed the distinction between the psychological growth of a conception and its meaning and validity. The two latter questions are not settled simply by recounting the genesis of our thought. The evolutionary psychologizing of the forms of thought tends to confuse the feeling of being necessitated in our acts of mind with the perception of a necessary connection of meaning in the objects of thought.[42] One must also inquire about the general principles of thought which make it possible for us to have the associative bonds upon which a genetic psychology relies. Although he was lacking in the systematic range and penetration of Husserl, Howison took a similar stand against any attempt to convert an evolutionary description of the development of our thinking into a standard for judging its validity.

Another problem which he illuminates is the shift of meaning when we pass from the biological to the philosophical meaning of evolution. Biological evolution "means not only *logical* community, or resemblance for observation and thought, but also likeness due to descent and birth; due to a *physiological* community, through the process of reproduction."[43] But when we start speaking about evolution as a cosmic process, we have to weaken or eliminate the note of physiological community, in any definite biological and causal sense, and content ourselves with the thread of logical community. Howison grants that this is a perfectly legitimate act of the mind, but it has some consequences which pragmatic naturalism does not see. The generalized method of genetic and comparative research can be applied in all fields, but the success of its application does not warrant the inference that therefore all things are related solely by the immanent continuity and causal descent required for the naturalistic self-sufficient whole of being. The logical meaning for continuity of analysis cannot be made the premise for drawing a metaphysical conclusion about the real being and relatedness of the objects of analysis. The only way to do this is to coalesce the physiological and logical meanings for community, and such a coalescence empties out the biological theory from which we make our start.

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[42] *George Holmes Howison, Philosopher and Teacher: A Selection from His Writings with a Biographical Sketch*, by J. W. Buckham and G. M. Stratton (Berkeley: University of California Press, 1934), pp. 163-64, 184.

[43] *Ibid.*, p. 169; cf. 177.

The only thread of continuity between the different meanings for community and genetic descent is a logical one, a unity of congruous interpretative conceptions and not a naturalistic monism of real process. To attain a generalized evolutionism, we must not only make an extrapolation from paleontology and biology but also perform this act with the distinctive resources of the human mind. The life of the investigating human mind is one irreducible source for philosophical evolutionism. And against Royce, Howison defends the irreducibility of the individual intelligence of men to modes of an absolute self. Human minds do join cooperatively in the community of scientific research, but they remain personal centers and never become sheer manifestations of some overself. That they are not self-sufficient beings is seen from their receptivity in regard to sensation and their obligation under moral law, but this means that men stand open to the ideals and the activity of a personal God. Howison does not import evolutionary development into God, however, but confines it to the natural, nonpersonal world. Men are not related to the divine in the manner of evolutionary waves (as Samuel Alexander depicts the situation) but as finite persons to the personal, self-possessed being of God.

Howison's confining of evolution to nature as a nonpersonal realm depended in principle, however, upon the Kantian distinction between phenomena (the evolutionary events and laws in nature) and noumena (the personal, nonevolving being of man and God). Since this distinction is now widely challenged by analytic and naturalistic philosophies, more recent proponents of idealism are looking for approaches based more closely upon the logic of current science. This brings them much closer to Royce's plan of assimilating evolution to absolute idealism through a study of the implications of scientific concepts. This is the path followed by Errol Harris in his book *Nature, Mind, and Modern Science.*

A good portion of this work is devoted to showing that classical empiricism and logical positivism are dead ends which cannot establish with rigor their principle for the verifiability of meaning.[44] Hence they cannot advance any *a priori* objections against the project of an idealistic interpretation of evolution on the ground that it is a meta-

[44] E. Harris, *Nature, Mind, and Modern Science* (New York: Macmillan, 1954), pp. 328-55.

physical, and hence an intrinsically meaningless, enterprise. This easy solution founders on the fact that the operations of hypothesizing, relating, and classifying which belong to any scientific work, including the biological theory of evolution, involve much more than the registration of present sense contents. The establishing of connections between hypotheses and empirical data involves too many factors to permit logical positivism to maintain its criterion of empirical meaning as a definite bar against metaphysical studies of scientific concepts.

Thus Harris wants to reopen the idealistic examination of evolution after the pause induced by the logical positivists and empiricists. Yet he refuses to accept Driesch's entelechy, since it is too vague, extrinsic, and dualistic to explain satisfactorily the traits of the organism. Instead, he proposes that the concrete universal of Hegel can be reinterpreted as realizing itself in organic things and constituting their internal telic principle. Embryonic development is a dialectical type of process, wherein an undifferentiated potentiality is polarized with a specializing differentiation of parts, leading to a final synthesis of unity in diversity or an integrated complex whole, the organism. The only adequate philosophical analysis of the facts of integrative growth is furnished by the immanent concrete universal.

The modern scientific outlook and its evolutionary biology contain a fivefold set of implications for philosophy.[45] (1) Nature constitutes a single system in which there are no sharp breaks between matter, life, and mind. Harris remarks that, for absolute idealism, the primacy of mind is not based on a static dualism of mind and body but on the teleological principle that all roads of development lead eventually to mind as their supreme concretion. (2) Evolution is not only change but directional growth, not only efficient causation but final as well. Indeed, these types of causation tend to overlap and converge in such a way that events are adequately explained only through an evolutionary teleology. (3) We do not look for the telic completion of an evolutionary process in something isolated and apart from developing nature but precisely in the climax of all organic wholes: the minded organism. Philosophically considered, mind or the final cause is immanently present in nature from the out-

[45] *Ibid.*, pp. 202-06, 373-74.

set and exerts a controlling influence over all stages in the evolutionary movement. Evolution is progressive in so far as the immanent concrete universal constantly tends toward its realization in mind or the plenary instance of unity amid diversity.

(4) Because all of nature has mind as its dynamic internal principle, the long-standing epistemological split between subject and object, mind and thing, is overcome. Man recognizes their ultimate identity when he experiences and reflects upon the outcome of evolution in his own mode of being, which is the natural world brought to conscious activity. The biologist's working conviction that the evolutionary process is intelligible and will yield definite results to research is thereby justified on the idealistic basis of the presence of mind or the rational principle in and as the forms of organic development. (5) Finally, a natural world whose evolution is a journey toward conscious mind cannot be a world deprived of value and real qualities, as the empiricist generalizers of Galilean mechanics presumed. Harris defends the actual presence of qualities and values in the evolving world as being more in harmony with the convictions of evolutionary theorists. Their appeal to survival value is not groundless, but it does require a justification and finds it in idealism. Survival value is only a preliminary way of stating that the valuable is that which promotes remotely or proximately the fuller realization of mind in nature and mind's active control over natural process.

Harris admits that these five points do not completely restore the metaphysics of absolute idealism. The implications drawn from evolutionary biology do not extend beyond the minded organism or mind in the human condition. Furthermore, the biological viewpoint does not establish the unitary convergence of all lines of evolution upon the human organism as the synthesizing telic principle of every evolutionary path. As supplementary evidence, then, Harris singles out the human mind's capacity to embrace the entire temporal flow of evolution in a reflective concept. Time's domain extends as far as bodies and animate processes, but then the temporal process gets comprehended as a whole and thus gets transcended by conscious mind. Yet our developing, fallible, finite minds do not achieve the full consciousness and perfect grasp of all phases of evolution as required by the unconditional telic actuality or concrete universal.

"Consequently, the complete manifestation of the universal in a perfect mind is the inescapable presupposition of all science and all thought based upon the concept of evolution."[46] Without perhaps realizing it, therefore, the evolutionist is providing data whose ultimate significance requires acceptance of the absolute mind.

Harris adds that this is the real foundation for the ontological argument, which is now continuous with a thorough analysis of evolutionary findings. Yet evolutionary thought furnishes a support for the ontological argument *to* God only when the evolutionary course is viewed idealistically as the immanent development *of* the absolute mind itself. Hence this analysis of modern biology does not lead to God in the theistic sense but rather to the developing absolute of a renovated Hegelian idealism. That is why Harris admits efficient causality only in order to fuse it completely with an immanent teleology and thus rule out any inference to a transcendent God by means of efficient cause.

Some obscurities continue to surround this renovation of dialectical absolutism. Harris does not show how the Hegelian notion of a scale of forms can be revised to mean a transformation of forms through descent or how there is any scientific warrant for maintaining a transformation from the minded organism to the absolute mind. He also leaves in the dark his crucial distinction between the temporal process of bodies and animate structures and what he calls the "timeless analytic-synthetic discursus" of self-conscious mind.[47] Temporality becomes only a preliminary manifestation of the concrete universal, whose true and abiding actuality is timeless. It is not sufficient to say that the reality of time is respected by treating timeless reflection as a terminal development. For in an absolute idealism, the timeless concrete universal is also the intimate principle and value standard which gives meaning and being to the temporal events as its own aspects or phases. We are left wondering whether temporal process can be anything more than a reflected play of graduated formal concepts, and hence whether the evolution studied by biologists is ever really dealt with in terms of the idealistic theory of an immanently developing timeless discursus.

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[46] *Ibid.*, p. 442.

[47] *Nature, Mind, and Modern Science, loc. cit.*

6. Evolutionary Humanism

During the 1958-59 centenary meetings as well as during the past generation, the most energetic champion of a philosophical humanism built upon Darwinism has been Sir Julian Huxley. He performed yeoman scientific service during the lean years when Darwin himself was in eclipse and when it required considerable staying power to defend natural selection. After the work of Fisher, Haldane, and Muller showed that the genetic mechanism could be related to the factors of adaptation and selection, Huxley took the lead in combining the new genetics with Darwinism to give the modified position now generally held. Huxley showed convincingly that Neo-Darwinism provides a unifying principle for all the sub-areas in biology and a fruitful guide for continuing research. In addition, he contended that the evolutionary position can be expanded into a total philosophy for understanding the universe and guiding men in their valuational choices. Although his philosophical evolutionism did not receive the same wide allegiance among biologists, it was welcomed by many philosophical naturalists and humanists as scientific confirmation of their notion of self-sufficing nature and purely immanent values for man.

Huxley distinguishes formally between evolution as a mechanism of genetic and natural selection agencies and evolution as a process or the ongoing result of the operation of the agencies.[48] They are related not only descriptively but also causally: The selective-genetic mechanism is a real efficient cause and the process or course of evolutionary change is its real effect and product. Huxley thus takes the decisive step of treating the description of selective and adaptive situations and the mathematical analysis of gene factors as genuine causal statements, and indeed as the biological expression of evolutionary process or the sole causal agency in things. He does not

[48] See his essay on "The Evolutionary Process," in *Evolution as a Process*, edited by J. Huxley, A. C. Hardy, and E. B. Ford (London: Allen and Unwin, 1954), pp. 1-13. The factual data and theories in the various sciences supporting the Neo-Darwinian account of evolution are presented by G. G. Simpson, *The Meaning of Evolution* (New Haven: Yale University Press, 1949); W. K. Gregory, *Evolution Emerging* (2 vols., New York: Macmillan, 1951); L. C. Cuénot, *L'évolution biologique* (Paris: Masson, 1951). In their concluding sections, Simpson and Gregory take a position close to the naturalism and evolutionary humanism of Julian Huxley, yet Gregory holds that evolutionary steps are irrevocable but not irreversible. Cuénot is even more cautious and does not absolutize the evolutionary factors.

argue this point but simply finds it just as customary as did his grandfather, Thomas Huxley, to speak about evolutionary principles as the true causes.

His next concern is to describe the evolutionary causes as being creative, mechanical, and progressive. Each of these qualifications is given a distinctive meaning in the Huxleyan context, although he offers his philosophical analysis as though it were the common heritage of all biologists.

"Creative" has the negative sense of excluding any more ultimate causal source outside of nature and the positive sense of producing real and basic results in nature. Julian Huxley moves far beyond the minimal agnostic position of Darwin and Thomas Huxley in his exclusion of God's causal activity. His purpose is ultimately the naturalistic ethical one of laying it down that "man must cease being afraid of his uniqueness, and must not continue to put off the responsibilities that are really his on to the shoulders of mythical gods or meta-physical absolutes."[49] On the positive side, Huxley seeks to establish a conjunction between the forces at work in the development of the inorganic universe and those in the living world. He speaks in a comprehensive way about a three-stage evolution from the nonliving to the living and to the human, but he does not make a detailed analysis of the common causal meaning underlying force in the physical system, biological agency, and cultural power.

As Huxley uses the term, "mechanical" serves mainly the negative function of removing any purpose or intelligent guidance from the development of biological species. He stresses that the causal principles of evolution are blind and purposeless, without going into any further detail about the positive way in which evolutionary agencies are related to the mechanical principles in a system of physical change. Once he has eliminated the possibility of teleology as implying an intelligent agent distinct from nature, Huxley is quite generous in what he ascribes to evolutionary workings. They issue in real adaptations, apart from any purposive intending by a mind. In the Huxleyan universe, there are adaptations without purposes, final results without finality, directions without intelligent directing. And he intends this contrast to hold good in the real order in an uncon-

[49] J. Huxley, *Evolution: the Modern Synthesis* (New York: Harper, 1942), p. 578.

ditioned way, rather than to signify merely a methodological limitation placed upon the biological procedures.

As far as biologists are concerned, the creative and mechanical character of the evolutionary mechanism *can* be taken in a methodological sense which does not necessarily commit them to Huxley's metaphysical standpoint. But it is more difficult for them to give a similar purely procedural meaning to his third note of "progressiveness" and hence it is the most controversial one for them. He explains carefully that evolutionary progress is neither necessary nor universal and that it is not identical with all the results of natural selection.[50] It requires considerable selection of evidence and construction of a conceptual model before the meaning of a progressive evolutionary mechanism can be established. Despite the many instances of degeneration and stagnant equilibrium, there is the fact of dominant types appearing at various eras as improvements of living stocks. The criteria for determining such dominant types are their greater control over the changing environment and their increasing independence of action. Through these traits they attain a broader biological efficiency than do other forms and thus they represent an evolutionary progress.

At this point, Huxley makes the transition from pre-human evolution to that of man.[51] Man is continuous with organic nature, since the same causal agencies of selection and mutation operate in producing the human organism. But Huxley also insists on man's uniqueness in respect to his particular genesis, his present mode of being, and especially his prospects for the future. Only the evolutionary line which actually did give rise to man could have done so, since it was the only one that could give rise to a form of life which is capable of true speech and conceptual thought. These are distinctive features of man's present mode of being, and on this score Huxley resists any efforts to whittle them down by comparative analysis or genetic psychology.

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[50] On the biological basis for the concept of evolutionary progress, see *Evolution: the Modern Synthesis*, pp. 556-69, and J. Huxley, *Evolution in Action* (New York: Harper, 1953), pp. 124-51.

[51] *Ibid.*, pp. 152-76; *Evolution: the Modern Synthesis*, pp. 570-78; *Evolution as a Process*, pp. 11-13. Huxley adopts a Bergsonian accent in holding that "the evolutionary process, as now embodied in man, has for the first time become aware of itself, is studying the laws of its own unfolding."—*Evolution as a Process*, p. 13.

His chief reason for the nonreductive view of man's present capacities is to give evolutionary humanism a program and a hope for the future. Quite literally, he sees no future possibility of evolutionary progress except through man's agency. All other lines of descent have lead into blind alleys, but man alone has found a substitute for genetic mutation. His intelligence permits him to transform biological into cultural progress, since he can retain, criticize, and heighten his social and individual experience. At the human level, then, progress must include not only the objective notes of biological efficiency but also some subjective notes of human value. Like Comte, Huxley adds a subjective criterion to the objective one as soon as he comes to the human plane and turns his face to the future outlook.

Now it becomes clear why Huxley insisted on giving an ontological and antitheistic meaning to the general description of the evolutionary mechanism. His long-range aim was so to describe these general factors that they would furnish a causal pattern of a definite sort to serve as an objective basis and norm for human choice. God was ruled out not because of the biological facts and concepts but because of the desire to anticipate the question of human valuational choice, which must not be governed by any extranatural considerations. It was not Huxley the ornithologist and biological synthesizer but Huxley the naturalistic philosopher who specified the antitheistic meaning for the creative and mechanical aspects of the evolutionary agency. His naturalistic humanism is not merely continuous with his scientific views on evolution but transforms them into stages of a philosophical argument.

The criteria of evolutionary progress—control, independence, capacity for advance and, at the human level, capacity for increased experience—become the criteria for ethical action and religiousness, once we come to reflect on them and generalize them as the sole guides for human decision. By responding deeply to the task of advancing the evolutionary line in terms of intensified human experience of individuals and social groups, we can enjoy all the values of moral and religious experience without calling upon any absolute. The standards of ethical choice are relative to the given stage of the evolutionary process, but they also have a certain permanence as long as the human type persists and can reflect on this process. "The ultimate guarantees for the correctness of our labels of rightness and

wrongness are to be sought for among the facts of evolutionary direction."[52] This is the decisive sense in which Huxley's philosophical preoccupations tend to transform all of his scientific descriptions of evolutionary mechanism and its general notes. He makes them furnish a basis for restricting humanistic religion to a feeling of awe and a practical commitment to the evolutionary forces immanent in nature, the individual self, and society. Hence although Huxley agrees explicitly with Father Teilhard de Chardin on our obligation to promote convergent cooperation among men rather than divergent competition, he denies that any future phase of evolutionary transcendence can lead men to the presence of God.

Huxley's evolutionary humanism has become the focal point for some interesting critical discussion of evolutionism from various standpoints. The geneticist Theodosius Dobzhansky is skeptical about drawing our ethical criteria from his science: The evolutionary and the eternal perspectives on human life are distinct and unreducible one to the other. He presents two objections against making an ethical use of evolutionary findings. On the factual side, there are many trends at work within the several species, including man. To define *the* direction of evolution as the one which promotes the traits which Huxley regards as progressive depends upon making a selection among actual tendencies and then defining directionality of evolution in these terms. This is not only a highly selective and constructural procedure but also leads to the second point of showing why we ought to take our duty from the results of such selection. Given man's freedom, he can call evolutionary directional progress into question as a norm for his choice. Merely the repetition that this is the constructed meaning for progress does not answer the question of why we should be obliged morally to take the progressive path at all. The question cannot be stilled by a form of cosmic intimidation about how the forces in the world are moving, since we

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[52] This statement concludes Julian Huxley's own Romanes Lecture on "Evolutionary Ethics," in T. H. Huxley and J. Huxley, *Touchstone for Ethics*, p. 156; cf. pp. 199, 228. Julian Huxley presents his synthesis of atheistic naturalism and a religious attitude in *Religion without Revelation* (revised ed., New York: Harper, 1957). Of special interest is his personal confession (pp. 65-96) of combining a highly religious response to nature with only the most casual acquaintance with any intellectual evidence for theism. Cuénot, *L'évolution biologique*, pp. 568-69, sees little difference between a pantheistic and a naturalistic approach to nature in religious terms.

make our moral choices on distinctively human grounds and not simply on descriptive translations of the prevailing forces in biological evolution. "Human acts and aspirations may be morally right or morally wrong, regardless of whether they assist the evolutionary process to proceed in the direction in which it has been going, or whether they assist it in any direction at all."[53] Evolutionary considerations are sometimes too vague and sometimes simply irrelevant to the task of determining our moral obligation and ordering of values in the concrete situation of moral choice.

The zoologist Paul Moody concludes his recent study of evolution with a personal acceptance of God as the source of natural laws of life and the goal of evolutionary process. Looking at all the blind alleys, retrogressions, and random actions involved in the course of evolution, he asks: "May not they in themselves form part of the pattern? Why should we assume that the laws of the universe, including those of evolution, must be so organized as to reach a goal by what seems to our human minds the most direct route?"[54] His point is not that there is no pattern or route to discern, but that it has to be studied comprehensively in its own actual contours rather than measured abstractly and selectively by some particular conception of economy of mechanical action. As Peirce noted, there is a logical pattern for the interplay of chance and law and for the gradual growth of the latter under conditions of contingency. God's purposive intelligence can achieve the gradual emergence of a many-leveled cosmos through this evolutionary polarity, rendering questionable the divorcement which Huxley proposes between adaptation and purpose, selective progress and a theistic context for the whole account of evolution.

Philosophers of science have started to study the trend among Neo-Darwinians to erase the distinction between a descriptive and a causally explanatory concept. Marjorie Grene suggests that correlations based on statistical trends in population groups do not themselves constitute, and only indirectly indicate, some of the real causal

[53] T. Dobzhansky, *The Biological Basis of Human Freedom* (New York: Columbia University Press, 1956), p. 131.

[54] P. A. Moody, *Introduction to Evolution* (New York: Harper, 1953), p. 432. A similar point is made philosophically by C. A. Hartshorne, "Outlines of a Philosophy of Nature. Part II," *The Personalist,* XXXIX (1958), 385-89, with a use of Peirce's logic of chance against Huxley's anti-finalism.

factors present in living nature. Hence such data do not justify the philosophical inference drawn by Huxley and his American colleague, George Simpson, that the selective-genetic mechanism is the total and exclusive cause of the biological changes observed in evolutionary process. What we today refer to as the selective-genetic mechanism is a complex concept, containing a direct element of causal agency in generation along with some considerable interpretation of population facts by the inquiring mind. This combination of real causal factors and descriptive instruments of probable explanation cannot be regarded as a massive flow of uniform causal power, and still less can it be appealed to philosophically as being simply the biological expression of an all-sufficient causal principle of cosmic evolution. When genetical selection is treated in a descriptive way as a tool of explanation bearing some reference to causal agency but not simply equated with a purposeless mechanical cause, it loses none of its mathematical rigor or its biological usefulness in developing the explanations proper to this discipline. It only ceases to support Simpson's and Huxley's philosophical exclusion of God as the ultimate intelligent cause and goal of nature. We can expect that genetics will follow the example of quantum physics in reflecting upon the meaning and limitations of its causal language, without regarding physical types of explanation as its own model.

Grene admits that if the meaning of the term "scientific" is confined to the mechanical prototype, then the neo-Darwinian stress upon the genetic-selective mechanism has the advantage of being logically simple and automatic. But in addition to logical simplicity and automatism, every evolutionary theory must also be measured by its adequacy in admitting all the factors which are required in our actual explanatory efforts. In this respect, the Huxley-Simpson position proves to be reductionist and hence to be lacking in explanatory range.

> Where concepts of more than one logical level are necessary to the interpretation of a set of phenomena, we ought not to pretend to be operating on one level only. In the context of evolution where we in fact acknowledge novel operational principles, we should not pretend that nothing is there but the conditions without which (admittedly) they could not operate. The sum total of necessary conditions for the coming into being of an individual, a species, a phylum or of life itself are not logically or historically identical *with* the individual, or species, or phylum, or life itself. . . . I suggest, there-

fore, that instead of Ockham's razor we might adopt as a test of theories of evolution the opposite principle: that entities, or more generally perhaps aspects of reality—for principles of organization are not entities, though they do define entities—should not be *subtracted* beyond what is honest.[55]

This inverse criterion is specially pertinent when it is a question of transmuting present biological theory into philosophical evolutionism as a naturalistic account of the genesis of the universe.

In his analytic study of the philosophical uses of scientific thinking, Stephen Toulmin uses Huxley's evolutionary naturalism as a case history in the transition from scientific explanation to scientifically oriented myth. The passage is made whenever a selected biological order is treated as the Sovereign Order of Nature and thus proposed as the ethical norm for men. In the past, the Aristotelian scale of nature was so used, and at present the evolutionary tree of life is serving the same purpose. The mythic use of evolution by Spencer was noted long ago by Chauncey Wright. For his part, Toulmin specifies two criteria for recognizing when a scientific concept is being mythologized.[56] The concept must be used in an extended sense rather than in its straight scientific meaning, and the extension must be made for motives other than the explanatory aims of the science in question. When these conditions are fulfilled, disputes that may arise in regard to the full-blown myth cannot be settled by having recourse to the usual scientific procedures, even though the myth itself may continue to thrive upon the achievements of the scientific substrate.

Huxley's appeal to evolutionary progress as an ethical and religious principle displays these two traits. In his usage, "evolution" is the evocative term for a highly selective and complex conceptual artefact. Biological selection is linked up vaguely at one end with physico-chemical events in the inorganic world, and at the other end it is made continuous with the moral and religious aims of human society. The resulting cosmic image includes far more than the

[55] M. Grene, "Two Evolutionary Theories," *The British Journal for the Philosophy of Science*, IX (1958), 192, 193. In "The Influence of Evolutionary Theory upon American Thought," *Gregorianum*, XXXII (1951), 582-90, G. P. Klubertanz, S.J., shows the difference between describing some lines of descent and furnishing a total causal explanation.

[56] S. Toulmin, "Contemporary Scientific Mythology," *Metaphysical Beliefs*, by S. Toulmin, R. W. Hepburn, and A. MacIntyre (London: SCM Press, 1957), pp. 50-65.

theory of natural selection and genetic mutation, so that critical discussion of its scope and use cannot reach a conclusion by reference to the data and procedures in biology. Evolutionary process now assumes the mythic status of the Sovereign Order of Nature and, as such, provides a standard and sanction for our moral choices and religious aspirations. Huxley's complex constructural account of evolution is intended not as a testable scientific hypothesis but rather as a stabilizing, controlling, and consoling image of the world for the use of naturalistic humanists. As distinct from the scientific notion of evolution based on genetics and paleontology, this evolutionary myth functions as a means of securing cosmic backing for the transition from *is* to *ought*, from impersonal survival-value of the stock to convergent value as the moral good and duty of man. To use Dewey's language, the mythic imagery of evolution serves to underwrite the naturalistic version of the quest for certainty in human values.

In his major treatise on *The Sources of Value*, S. C. Pepper reopens the question of the ethical significance of survival value and its relation to the rest of the human value system. He criticizes the tooth-and-claw version of survival, since modern biological research brings out the importance of cooperation and interdependence of the various species and their individual members. He also rejects Julian Huxley's notion of continuous evolutionary progress as the norm for determining ethical values and obligations. Pepper observes that on this score Huxley does not enjoy the full support of Simpson and other leading evolutionists. We can discover various modes of adaptation within some definite zone of life and then determine the dominant form within that situation. But there are many zones of life, some of them unrelated in time and biological competition and some of them existing contemporaneously and yet with little or no competition. We cannot significantly grade as lower and higher the dominant forms in these different life zones, since their dominance refers to their mode of adaptation within their own life situation and not to a succession of forms passing from one such zone to another. There is no continuous march of evolutionary progress from one dominant form to another, culminating at last in man.

> In short, there are as many dynamically sanctioned lines of biological progress as there are life zones within which adaptation is going on through natural selection. But there is no dynamically sanctioned line of progress

across life zones, and consequently none for the course of evolutionary history as a whole.[57]

Hence a carefully constructed evolutionary theory will not attempt to provide a cosmic sanction for the features which have enabled man to survive, and will not erect them into a value standard on the basis of their being identical with some universal norm of evolutionary progress.

Pepper's critique is significant on several counts. For one thing, it suggests that the relation between evolutionary theory and the notion of cosmic progress is just as problematic today as in the time of Spencer. Hence it counsels the ethician and value philosopher against taking the easy road of invoking progress as a basis for moral judgments. A second point is that Pepper returns to a position much closer to that of Darwin himself, both in stressing the plural lines of evolutionary adaptation and in looking for the value significance of survival directly in the operation of natural selection in human life, rather than in any essential link between natural selection and some schema of progress. He also credits Darwin with seeing that the precise way in which natural selection operates most effectively in the region of man is through his intelligence and moral conscience. Cultural evolution is not discontinuous with biological evolution, since they are both present in human development and both furnish modes of operation for securing the survival of the human species. Pepper does not reduce purposive values simply to that of survival, but he does maintain that in any situation of ultimate decision the latter must be dominant. His conclusion is that natural selection in its cultural and social form is the ultimate sanction for all human values and obligations. Where he differs from Huxley is in taking the selective process as an ultimate evaluative process in itself, without need for any further sanction in a structure of continuous cosmic progress.

7. Conclusion

The outcome of this study of the impact of Darwin and evolutionary theories upon philosophy can be briefly stated. Perhaps the most striking point is the variety of philosophic responses that have been evoked by the evolutionary findings in biology. The scientific data

[57] S. C. Pepper, *The Sources of Value* (Berkeley and Los Angeles: University of California Press, 1958), p. 625.

and theories do not necessarily generate by their own weight any one single conclusion in the philosophical order or support one favored general interpretation of the universe. This is where an analysis of the consequences of evolution for philosophy proper must be carefully distinguished from a psychological and cultural description in terms of the history of ideas. The latter approach is valuable for underlining certain pervasive concrete traits in our contemporary outlook which are either derived from evolutionary thought or greatly strengthened by it. For instance, we are now accustomed to a vastly enlarged time scale and to a view of time itself as a struggling, creative, irreversible process bringing forth ever novel forms of life. We take a genetic and historical approach to everything, looking for the meaning and the possibilities of things in their path of growth and the seed of novelty they contain. Man's kinship with the organic world is recognized, his thoroughly temporal and historical mode of reality is being explored, and the feeling is abroad that he stands at the threshold of a new mode of life. These convictions belong to our evolutionary atmosphere as a matter of daily respiration. Nevertheless, they remain fundamentally neutral as far as the major philosophical issues are concerned. The common stock of evolutionary ideas is open to diverse and conflicting philosophical interpretations. The idealist and the naturalist, the phenomenologist and the realistic theist, are all fully aware of the descriptive notes in the evolutionary climate, but the cultural facts themselves are not decisive for settling the principal differences among these philosophers.

This does not mean that evolutionary research is irrelevant for philosophy but only that its contribution has to be estimated in every instance through the proper canons of philosophical inquiry and cannot be automatically registered. We have seen this to be the case in the two problems of physico-theology and progress. A careful historical description and philosophical evaluation are required to determine the precise grounds of conflict between the Derham-Paley argument from design and the biological position of Darwin. A further analysis is needed to find out whether or not the untenability of Paley's watch argument entails the abandoning of all natural theology and hence leads to agnosticism as an unavoidable standpoint. Again, the question of whether there is any sort of progress in the universe and human history is not completely decided on biological

and physical grounds, although they may rule out certain lines of argument or show that other views are more likely. There is still the problem of whether a philosophical conception can be found to account for random, retrogressive, and cyclic instances.

Among philosophers of evolution, the persistent problem has been that of making the transition from the scientific data and hypotheses about evolution to a philosophical evolutionism. This is a question of methodology which does not get resolved simply by watching what the scientific contributors to evolutionary theory do. For many of them do not enlarge their work to include a philosophical significance, and those who do follow this path are employing some additional instruments of philosophical generalization which are precisely what still require analysis and evaluation. We have noticed some divergent ways in which men conceive the right method for generalizing evolutionary thought. Wright claims that there is no speculatively valid method available; Peirce looks for it in a logic of the growth of law or reasonableness; Dewey finds it in converting the scientific mode of description into a naturalistic logic and ontology; Harris appeals to the idealistic notion of immanent mind; Bergson plunges into interior awareness of temporal duration.

One useful result of taking a synoptic historical view of these positions is that it furnishes a strong reminder of the persistent difficulties surrounding evolutionism as a philosophical claim. Anyone sharing the climate of evolution in its scientific and cultural aspects finds it difficult to retain a vivid sense of the problematic character of evolutionary discussion when it begins to supply general answers about the origin of the universe, the nature of causal relations and what they exclude, and the basis of moral obligation and religious search. Yet it is illusory to think that one can move continuously and without any further instruments from genetics and paleontology into these other areas. The value of a critically used methodology is to dispel this illusion by distinguishing the scientific aspects of evolution from philosophical evolutionism and requiring the latter to face explicitly the task of reflecting upon and testing the bases in method and evidence for a generalized interpretation of evolution.

To recognize a mythic element in much contemporary speculation on evolution is not to pass any judgment on the intrinsic soundness of that speculation. It is intended only to clarify from another per-

spective the point that the incorporation of scientific findings and theories about evolution into a general view of the universe and human destiny requires more justification than a loose restatement of the scientific findings and theories themselves. Largely under the pressure of the evolutionary mode of thinking in all fields, we have lost confidence in the Newtonian model of the world machine and yet have not been able to live familiarly with any of the newer physical accounts, some of which discourage any efforts at visualization of the mathematical theory. Yet men insistently require some concrete symbols and analogies expressing the significance of the universe and human history to them. And since in a scientific age this demand gets focussed upon the resources of the sciences, the tendency is to build the imagery from a basis in the more concrete evolutionary sciences. Thus one of the cultural functions of evolutionary speculation today is to grope toward a humanly satisfying, as well as approximately correct, image of the developing universe and man's role in it.

The functions of philosophy, however, are never exhaustively described in terms of present cultural needs. Philosophy is here to make us critically aware of both the validity and the limitations of the evidence, the constructural operations, and the mythic fusion on the side of the human subject, all of which are cooperating in trying to provide an evolutionary image for our age. Because of its deliberately critical and reflective standpoint, philosophy cannot merely submit to the impact of evolutionary thought and serve as a component in the process of forming an evolutionary outlook. It must continue to assess, restrict, and revise this process, as well as hold before our view other ways of looking at the world and forming our patterns of conduct. Philosophies which remain loyal to their methodological and critical tasks are never fully integrated with the reigning world-image, evolutionary or otherwise, but retain a certain salutary distance which keeps us responsive to the rigorous demands of inquiry and always open to new ways of reaching evidence.

The need to make a personal appraisal of the scientific sources on evolution stands out plainly in a comparison between Julian Huxley and Father Pierre Teilhard de Chardin, S.J. Teilhard's work is becoming increasingly known to scientists and theologians, but as

yet it has not influenced the philosophers of evolution very deeply.[58] Both Huxley and Teilhard are working from roughly the same evidence, although the latter stresses his own field of paleontology and human development. Each approaches the task of finding the general significance of evolution not only with the resources of his scientific training but also with those of his philosophy and his faith—faith in self-contained nature in the one instance and faith in the revealing God in the other. They agree upon the convergent and cooperative character of evolutionary forces at the human level, as well as that man embodies a distinctive living reality, what Teilhard calls the noösphere within the encompassing biosphere. Furthermore, both inquirers maintain that present-day man is not the final stage in the evolutionary process but that still higher modes of living lie open for realization by human social agencies.

Yet they disagree sharply about the kind of reality which lies beyond the evolutionary threshold or "point omega" toward which human history is moving. For Huxley, this next level can be characterized at least negatively as involving no reality which transcends the totality of evolving nature itself. Teilhard, on the other hand, describes the evolutionary convergence as leading man into the presence of God as the personal, energic source of all life, immanent in and also personally distinct from natural process. Thus Teilhard arrives at a spiritual and theistic conception of evolution. But he does so with the aid of some arguments which at least implicitly are philosophical in significance.

In terms of the present survey, we can orient Teilhard's position with respect to some of the main philosophical tendencies. He agrees with the idealists, especially Harris and personalism, that we should reinterpret the emergence of mind from matter in a finalistic way. It does not mean that mind is reducible to its organic basis but rather that "spirit is cosmically more important than matter, more valuable,

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[58] A brief sketch is made in English by A. Knodel, "An Introduction to the Integral Evolutionism of Teilhard de Chardin," *The Personalist*, XXXVIII (1957), 347-55. Longer studies have been written by C. Tresmontant, *Pierre Teilhard de Chardin: His Thought* (Baltimore: Helicon Press, 1959), and by Claude Cuénot, *Pierre Teilhard de Chardin: Les grandes étapes de son évolution* (Paris: Plon, 1958. A bibliography of writings by and on Teilhard was compiled by Leo Larkin, S.J., for *Woodstock College Library Chapbook I*, April 1958, pp. 7-15.

more powerful, more final."[59] Thus a teleological approach can be taken, in which the emergence of spirit is a token of its unique reality and dominating importance. Yet Teilhard does not lessen the naturalistic insistence that the emergence of a new level of reality with man required a slight organic transformation. The point is that by means of this organic change there is introduced into the universe a new factor, so that it is now possible to reflect upon the nature of evolution and to control its future course.

On the methodological issue of finding in man's distinctive consciousness a means of access to the general nature and finalizing import of evolutionary process, Teilhard remains close to Bergson and even to Huxley. "If man is nothing else than evolution become conscious of itself, man, then, in order to be true to himself and to the universe, has to push forward individually and socially, the spiritual progress of nature." The reality of progress and the irreversibility of the growth toward spiritual reality are not left ambiguous by Teilhard, who accepts them at the same time that he rejects any facile optimism about automatic improvement. We have to work hard as persons and social groups to maintain human existence and achieve any advance. By contrast with naturalistic humanism, however, Teilhard combines a stress upon man's natural origin and transforming capacities with a wholehearted religious acceptance of God. Ours is a gradually awakening universe, and what we are awakening to is the

[59] This and the following quotation are from Pierre Teilhard de Chardin, S.J., "Spiritualistic Evolution," *ibid.*, pp. 17, 18. Two brief statements of some philosophical and theological issues raised by evolution, especially as it applies to man, are made by L. Dufault, O.M.I., "The Philosophical and Biological Implications of Evolution," *Proceedings of the American Catholic Philosophical Association*, XXVI (1952), 66-80, and by C. Vollert, S.J., "Evolution of the Human Body," *The Catholic Mind*, L (1952), 135-54. Recent theological interest in time and history should avoid two pitfalls. One is the confusion sometimes made between a rigorously cyclic theory of cosmic change and the spiral sort of advance envisioned by Vico and Teilhard. The other danger is that of oversimplifying the problem of the roots of contemporary concern for time and history to the point where all positive conceptions are treated merely as a secularizing and mythologizing of the Christian outlook. Although evolutionary thought is much more ambiguous about historical progress than is usually recognized, this does not lessen the fact that some aspects of evolutionism do furnish an irreducible source of our present awareness of time and history which is not just a transposition of theological themes. In one of his last essays, in *L'apparition de l'homme* (Paris: Éditions du Seuil, 1956), pp. 335-374, Teilhard stresses the evolutionary intimacy of God's causal operation and argues (against Huxley and Simpson) that the hominization of the world must give birth not only to a deepened sense of the historical but also to our reflective union with the transcendent God.

common summons of all forms of life and especially man's spiritual reality to a convergent sharing in the life of the personal God. Thus for post-Darwinian man, the meaning of mechanism is transformed to integrate it with teleology and the effective presence of God in the course of evolutionary striving.

In the deadlock between Huxley and Teilhard over an ultimate interpretation of evolution, we can observe how the scientific sources of evidence do not entirely determine the structure of an evolutionary philosophy. Especially in the case of the persistent problem of the relation between descriptive and causal elements in our concept of the agencies in evolutionary change, a broadened and reflective philosophical analysis of the scientific findings and language is unavoidable. Even when the contribution of the various components is discriminated, there remains the further issue of how biological causation is related to a cosmic evolutionary process, and whether the evolutionary causal explanations are the only one required to account for our universe in causal terms. Thus the questions of *generalization and causality* in evolutionary theory tend to make a juncture, indicating for the philosopher that they constitute the core of any present-day study of evolutionism.

The philosopher's duty is to make a careful scrutiny of all the contributing factors in our contemporary evolutionary outlooks. This involves a study of the scientific facts and theories, the controlling world-imagery, the naturalistic or theistic working faiths, and the philosophical methods and concepts being used. In addition, however, the philosophical inquirer must bring to bear some other human resources which may not figure immediately as components in some prevailing evolutionary position. He has to consult what is suggested about the nature of temporal process and history, the structure of human experience and the ways to God, by philosophies not so directly implicated in the biological work of Darwin and his successors as are the philosophical positions considered here. This is a complex task. But to become aware of the need for it and of the futility of expecting any pre-packaged solution of evolutionary difficulties is the first step toward getting it done. In the problem of evolution as well as everywhere else in the philosophy of nature, our philosophical judgment rests ultimately upon our personal study and evaluation of the whole tissue of relevant sources open to men.

Even though not formed directly from inorganic matter, the man Adam arose, body and soul, from a special intervention on the part of the Creator God.

A NOTE ON THEOLOGY AND EVOLUTION

ROBERT W. GLEASON

THE CONTROVERSIES OVER evolution that excited the nineteenth century and the beginning of the twentieth century have to a certain extent disappeared from theological literature. While the origin of man and the question of his parents will always be a matter of vital interest, present-day theologians are far more moderate in their claims than were their predecessors. Similarly, modern scientists seem to be more content to remain within the area of their respective fields with their appropriate probabilities and certitudes than were some of their forerunners.[1] At one time in theology a certain fundamentalism seemed to be popular. What is known today as concordism, that is, the effort to treat the Bible as though its apparently literal expressions were teaching facts of science, no longer finds favor with exegetes or theologians.[2] Nonetheless, the teaching body of the Church, the official *magisterium*, still exercises vigilance over the writings of theologians where these touch the origins of man and especially his derivation from a single pair.

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[1] For a balanced evaluation in English of both anthropological and theological data on human evolution, F. Ewing's "Human Evolution—1956," *Anthropological Quarterly*, Oct. 1956, pp. 91-139, should be consulted.

[2] Cf. E. Arbez, "Genesis I-XI and Prehistory," *American Ecclesiastical Review*, CXXIII (1950), 82-83. Cf. also Arbez, *art. cit.*, pp. 86-87.

It is evident today that the Sacred Books of other Semitic cultures, the Egyptian, the Sumerian, the Assyrian, bear remarkable similarity to the Bible in many details, while they are wholly different in the affirmations they conceal beneath their imagery. Today we realize that theological opportunism is of very little apologetic value. Moreover, exegetes are willing to recognize certain facets of biblical interpretation which seemed foreign to nineteenth-century thought. In the first chapter of Genesis, the section which causes most problems for the theologian interested in evolution, there are undoubtedly images, expressions and elements of popular folklore common to other cultures besides that of the Israelites. It is no longer popular to consider all these elements as having been dictated by God.[3] Again, there are two different accounts of the creation of man in this chapter of Genesis and the author of the first account is evidently a very different personality from the author of the second. While all theologians agree that history is expressed in the assertions of Genesis, nevertheless today they admit that it is a peculiar type of history whose rules are still partly unknown to us. There are certain definite ways to telling a story, certain idioms which are peculiar to the Semitic language and which do not correspond to any of our categories of Greco-Roman history or of modern literary forms. Modern archaeological research is enabling us to come much closer to the original meaning of Genesis and in doing so, some of the barriers to a modern form of evolution are being removed for the theologian.[4]

The first narrative of the creation and especially the account of the creation of man probably does not go back to the actual date of Moses, that is, to the thirteenth or the fifteenth century before Christ but is rather a sort of theological résumé of Mosaic tradition. It is a popular account of the creation of man, adapted to the memory of the oriental people and yet, it is not popular in the sense that it is as imaged as the second creation account. To understand this we must realize that the human author whom God chooses as an instrument of His message works within the secular framework of his own time. He shares the so-called scientific notions of his contemporaries

[3] Cf. C. Hauret, *Beginnings; Genesis and Modern Science* (Dubuque: Priory Press, 1955), p. 16.

[4] F. Ewing, *art. cit.*, pp. 123-127. Cf. E. Boné, "L'homme: genèse et cheminement," *Nouvelle Revue Théologique*, 1947, p. 389.

based upon personal observation and experience. The sacred author communicates a divine thought to us, through the medium of scientific notions which are a part of the mental culture of his own time. He is, after all, attempting to express things in terms in which his readers can understand him. It is possible that the scientific notions of the author of Genesis are erroneous, drawn as they are from contemporary science but it is not these notions that he is affirming or implying. It is not the intention of Sacred Scripture to teach us cosmogony. It preserves neutrality before various hypotheses concerning the original development of life and mankind in this world.

With regard to the question of the evolution of the human body, the problem which most intrigues Catholic scholars, the air has been considerably cleared since the nineteenth century.[5] Numerous Catholic scholars are prepared today to admit a form of theistic transformism or evolution. Exegetes and theologians are today more concerned with observing the demands which theology places upon itself as a science and with pointing out the demands which scientific evolutionary theories should place upon themselves as sciences. The origin of the human body by way of evolution does not appear improbable today. Many anthropologists believe that there is some genetic and physical connection between man and lower animals. This is at least a working hypothesis which the theologian must treat as such, and within the framework of his own science determine how much validity can be granted to it.[6] Although Scripture says that God formed Adam from the dust of the earth, it may well be that the dust refers rather to organic matter oriented by God through a long process. We no longer feel it necessary to hold that God formed the body of man immediately and directly from inorganic matter. It is true that some years ago many theologians viewed such transformism with anything but favor, since transformism was so frequently anti-theistic in its implications and connected with many other theories scarcely calculated to please Catholic thinkers. The conclusions of scientists which are debatable should be controlled by their own science and conclusions of theology should also be con-

[5] Cf. Achille Cardinal Liénart, "Science and the Bible," *The Commonweal*, June 24, 1949, pp. 265-267.

[6] Cf. W. Hauber, "Evolution and Catholic Thought," *American Ecclesiastical Review*, CVI (1942), 161-164.

trolled by its scientific methods. The certain should be distinguished from the probable and the possible, and the unchanging affirmations of Scripture should be distinguished from the interpretations of exegetes and from the images used by the first writer. From the first creation account we can derive the fact that man owes his existence to a special intervention on the part of God. But we are unable to decide with certainty *from the text* when this intervention of God took place, whether it took place upon organic or inorganic matter and how many human beings were in question. It is not easy either to decide *from the text* of the first creation account whether Adam and Eve were a single couple or many primitive couples.[7]

The second account clarifies many of the questions which were left unclear from the first account. In the first account the author told of the origin of the universe in terms of a science of his day, and in the second account the author pictured the creation of man according to his own ideas of what man is. The second account portrays a Creator molding clay as a potter and breathing life into it. These are images that were traditional to Israelite culture, and in fact, in other texts of Babylonian literature we see similar stories recounted. Egyptian folklore has its god Khnum who created man, modeling him upon a potter's wheel. Other folklores tell us of goddesses modeling men and women from clay. What the sacred author is insisting upon is that the fact that at the origin of man, the creator God is seen and that He stands at the origin of both man's body and soul. Man is the master of his own destiny and, gifted with intelligence and will, he resembles God Himself. There is a very special poetic setting set forth by the author in order to show us that man and only man caused God to intervene in a special fashion in his creation.[8]

The nature of the divine intervention in the formation of Adam's body is not entirely clear. We know that man is a being endowed with freedom of choice and intellectual processes and as such must have an immaterial soul directly created by God. Is it possible that the divine intervention consisted merely in the vivification by an

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[7] Cf. P. Chaine, *Le Livre de la Genèse* (Paris: Cerf, 1948), p. 46; also M. Gruenthaner, "Evolution and the Scriptures," *Catholic Biblical Quarterly*, XIII (1951), 21-27, for the scriptural evidence against Polygenism.

[8] Hauret, *op. cit.*, p. 94. Cf. Gruenthaner, *art. cit.*, pp. 24-26, on the nature of the intervention.

immortal soul of previously organically organized matter? That the human soul is due to a special intervention of God in the form of creation is irreversible Catholic teaching. As a spiritual substance, this human soul comes directly from the hands of God who creates it in each individual case. Is it possible that the sacred author is simply expressing this reality of the joining of the spiritual soul to organic matter by his image of God breathing into matter? In order to obtain some kind of a picture of the divine intervention by which the human body was formed, we do not have to resort to the primitive ideas condemned by Augustine which envision God molding earth to the form of a human body and then breathing into that earth a human soul.

It is perfectly acceptable to maintain that God created man's body directly from inorganic matter and by an act of his will caused that matter to be animated by the spiritual soul. However, some modern theologians, approaching the text with much more knowledge of paleontological discoveries, feel that it is also possible to interpret the text as saying that God drew the human body from an animal organism which was transformed so as to receive a human soul. It is possible that this transformation occurred before the infusion of the human soul, so that God retouched, as it were, an animal organism and the animal became a living person upon the infusion of the divinely created soul. Thus the body of man may actually have been enjoying some animal or subhuman life when God infused the spiritual soul into it. If we accept the fact that the human came into being at the end of a series of sudden mutations directed to this end by the Creator God, then these changes reveal God's Providence throughout. At a certain point, the animal organism in question may have been sufficiently perfected so that it was ready for the last touches preceding the infusion of the human soul. But we must not conceive this perfection as though it *required* the infusion of a human soul from purely immanent intramundane processes. Rather, the mutations which prepared for the soul would be directed by God and His special action throughout.

Whatever theory one holds, one must always accept the fact that the creation of man is peculiar in several senses. The creation of his soul is due directly to the creative act of God, and his body itself is formed by a peculiar intervention of the Most High. Whether this

intervention consists in the transformation of purely inorganic matter, or in a divine alteration of an animal organism, or in the elevation of subhuman activities in order to prepare and dispose for the reception of the soul, we must in any event maintain that the man Adam arose, *body and soul,* from a special intervention on the part of God. By reason of his intellectual nature, man is directly related to his Creator and requires this intervention of God, which is expressed in the text by the act of God breathing life into him. Whether this be reorganization of a pre-existing animal organism, whether it be the transformation of the dust of the earth in a literal sense, or whether it be by the infusion of the human soul, the sacred text does not explicitly say. However, we can be sure that the hypotheses of the purely animal origin of man is excluded. Man is in no sense a child of an animal.[9] Pius XII in the encyclical *Humani Generis* has said that the Church does not forbid research and discussion by men of theology and science with regard to the doctrine of evolution in so far as this doctrine inquires into the origin of the human body as coming from pre-existing living matter. But the Catholic Faith obliges us to hold that all human souls are immediately created by God. With modesty and moderation the expert may submit his reasons on one side or the other with regard to mitigated, theistic transformism.

We cannot accept the theory that the transformation from one species to another took place as a result of causes purely immanent. But we can accept a theory of transformism in which a special intervention of God takes place. In no supposition may we admit that any animal body demanded the creation of the human soul. For there is an essential difference between matter and spirit. It can indeed be said that God, Who directed evolution precisely to man as to an end, owes it to Himself to create a man by the infusion of the human soul but that this is not due to any internal exigency on the part of organic matter no matter how highly organized. It is preferable to say that an animal body evolved and was slowly formed under the direction of God to that point where it was suitable for the infusion of the spiritual soul. In this case, the soul as the form of the body, by its own information of the animal body profoundly

[9] M. Flick. "L'Origine del corpo del primo uomo," *Gregorianum,* 1948, p. 366.

transforms the body into which it is inserted and thus constitutes that body genuinely human. There is no great difference whether one says that the spiritual form created the last disposition within the matter by informing it under the influence of God as the efficient cause or whether one says that God Himself, logically prior, produced certain ultimate dispositions in organic matter to proximately dispose this animal body to be the material cause of a human composite. In both cases it is evident that God, by infusing the spiritual soul, disposes this organic matter so that it should become human matter. In the first opinion a body of a brute is adorned with a human soul and thus becomes human. In the second opinion, it becomes human after having been an animal but close to the human. In the second opinion, which is preferable, the whole man, body and soul, is clearly formed by the immediate operation of God. The organic matter, which is the material cause, would in this opinion have been previously animal. In the classical opinion it has been considered inorganic matter. But in both cases, matter does not become the matter of man through its innate forces but through the direct intervention of God.

Man, even with regard to his body, arises by a special intervention of God inasmuch as the infusion of a human soul induces a specifically human organization of the body, whether this humanization is conceived as rationally prior to the infusion of the soul or concomitant with it through that mutual and reciprocal causality by which the ultimate disposition for the reception of the form is affected by the presence of the form itself. It does not appear to us, from theological sources, that there is any contradiction between such theory and what the Catholic theologian is obliged to hold. Man is still essentially different from the brute, and body and soul are still formed by the immediate intervention of God.

Not every species of transformism can be admitted. Materialistic transformism, which explains the body of man by immanent intramundane forces of evolution prescinding from the activity of God, cannot be accepted by the theologian. However, if the theologian accepts the doctrine of the peculiar intervention of God in regard to the formation not only of the soul of man but also of his body, we do not see that he is in any difficulty from any magisterial text. The theories of moderate transformism could, it seems, be modestly pro-

posed until such a moment as theology and science arrive at fuller clarity.

There is no doubt that many elements in the Genesis recital are also figurative. Among the symbolic elements may perhaps be considered the formation of man from the slime of the earth, the Garden of Paradise, the trees, the leading of the animals to man that he might give them their names, the formation of Eve from the rib of Adam, the serpent, the splendid sword, and the tunics of leaves.

As regards the formation of Eve, it is perhaps possible to interpret the text as implying formation of Eve from some part of Adam's body, or as implying that Adam is the exemplary cause of Eve, thus intimating the equality of human nature in Adam and Eve. We do not assert that this interpretation is the genuine interpretation of the formation of Eve, but we merely state negatively, that it is not evident that the narrative of Sacred Scripture forbids this interpretation. Thus Eve would be presented as the equal of Adam according to her human nature, an equality which is the basis for monogamy, but subordinate to him within the household.

The Genesis narrative obviously supposes the essential unity of the human race. The term used in describing the creation of Eve, namely, "rib" or "side" is certainly one of the most obscure words in Genesis. Man and woman form a unity, each enjoys a common nature superior to the nature of animals, each complements the other and is meant for the other. The author certainly teaches in this story of Eve the spiritual nature of womanhood and her root equality with man, and the fact that the two form a moral person according to God's design. Woman possesses the identical human nature as man and this truth is strongly underscored in the relation of her creation. It seems legitimate to suggest modestly that what is underscored here are these religious truths and that an interpretation of Adam as an exemplary cause is not forbidden. The Biblical Commission has formally stated that Eve was drawn in some way from Adam. From whatever aspect we look upon the problem, the idea that God took an animal and transformed it is somewhat artificial with respect to Eve. The furthest that we can go in suggesting a solution to this problem is that Adam was at least the exemplary cause of Eve in so far as her body and her nature were fashioned after his. The exact

manner in which her body is formed is uncertain from the text, nor has tradition clarified it with any certainty.

The doctrine of the origin of all men from one pair seems to be so intimately involved with other dogmatic truths, such as the dogma of original sin, that all Catholics must hold it.[10] "No Catholic can hold that after Adam there existed on this earth true men who did not take their origin through natural generation from him as from the first parent of all, or that Adam is merely a symbol for a number of first parents. For it is unintelligible how such an opinion can be squared with what the sources of revealed truth and the documents of the Magisterium of the Church teach on original sin, which proceeds from sin actually committed by an individual Adam, and which, passed on to all by way of generation, is in everyone as his own."[11]

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[10] V. Marcozzi, "Poligenesi ed evoluzione nelle origini dell'uomo," *Gregorianum*, 1948, p. 390. Cf. also H. Lennerz, "Quid theologo dicendum de polygenismo," *Gregorianum*, 1948, pp. 81-98.

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Evolution, with its happy consequent of the survival of the fittest, was highly congenial to many nineteenth-century American minds of business, bench, and bar.

DARWINISM AND AMERICA

VINCENT C. HOPKINS

IN 1859 WHEN Charles Darwin published his hypothesis of evolution by natural selection as an explanation of how things had come to be in the organic world, he was unaware of the uses to which the phrases he had coined, or made current, would be put in areas beyond the properly biological. His theory, however, filled a gap in the general intellectual structure of the day. The higher criticism of the Bible had undermined the influence of the scriptural account of the origin of things and there was a rather common feeling that there was need for a new Genesis. In addition, the climate of opinion among the consciously intellectual had been becoming increasingly materialistic in the years before the publication of the *Origin of Species by Natural Selection or the Preservation of Favored Races in the Struggle for Life.* Scientists had been allowing themselves the luxury of generalization and *vulgarisateurs,* like the German doctor Louis Büchner who proclaimed in his book, *Energy and Matter,* that "matter is immortal and for this reason it is impossible that the world can have been created," were deducing from these generalizations, with many a lyric leap, what they wished to find in them, support for mechanistic materialism. God, Who had been reduced in the thinking of the deistic *philosophes* of the eighteenth century to the role of a *fais-néant* king of the later Merovingian dynasty, was now read out of creation completely.

However, the abolition of God, as Dean Swift once remarked of a hypothetical abolition of Christianity, was not without its inconveniences in the intellectual as well as in other orders. For, in addition to mechanistic materialism, another idol of the nineteenth-century market place was the idea of progress. This idea, which is profoundly Christian in origin, had been glowingly described in secular terms in the previous century by the Marquis de Condorcet, among others, in a work which he wrote while he was in hiding during the Terror. In this book, *Sketch for a Historical Picture of the Progress of the Human Mind,* Condorcet recounted the nine stages by which men had lifted themselves from savagery to the brink of perfection on earth, the tenth stage, which, so sanguine was the Marquis, apparently was soon to be reached. How men had attained this highly desirable state was explained by Condorcet in a way that was typical of his age. It had been done by Reason, the universal meliorative of that period. But this type of dualistic thinking did not sit well with the materialistic monists of the succeeding century. Something else was needed and evolution by natural selection fitted very nicely.

Developmental hypotheses had been in circulation for some time. Buffon and Lamarck were aware of the evolution of biological species. Erasmus Darwin, Charles's grandfather, had noted the struggle for survival with a happy outcome for the fittest, and had developed an evolutionary theory to such a degree that his biographer has claimed that "for every book by the grandson there was a chapter by the grandfather." Sir Charles Lyell had published his *Principles of Geology,* the second volume of which had a great influence on Darwin, in 1830. In this work he described the uniformitarian development of the earth's strata and upset the dominant catastrophic theory. Apart from the world of science, the idea of growth had been popularized by the historians of the eighteenth century, by Montesquieu, Voltaire and Gibbon as well as Condorcet. It had been further developed by Hegel in his theory of the three stages of human history, oriental despotism, classical slavery and modern freedom, and by Comte who elaborated upon the theological, metaphysical and positivistic stages of human thinking. Indicative of how widely such ideas had spread are the remarks Disraeli puts in the mouth of Lady Constance, a character in his novel, *Tancred,*

published in 1847: "You know, all is development—the principle is perpetually going on. First there was nothing; then there was something; then—I forget the next—I think there were shells; then fishes; then we came—let me see—did we come next? Never mind that; we came at last, and the next change will be something very superior to us, something with wings."

Evolution by natural selection, consequently, had a wide appeal in the mid-nineteenth century. It was automatic in its operations and so did away with any need for purpose in the universe, be it the purpose of a creator or of a creature. But apart from satisfying the intellectual needs of that generation by bolstering an already existing deterministic materialism, the theory also mirrored the kind of competition which was common in a world in the throes of the industrial revolution, dominated by the Protestant ethic and embarked on imperialistic ventures. Finally, the theory of natural selection and the arguments of the classical economists to prove that unlimited competition brought about the best and cheapest product were very similar.[1]

It is with the social aspects of the influence of Darwin's ideas, particularly in the United States, that this short essay will attempt to deal. Darwin did not apply his theory to human society in a systematic form. This was done by Herbert Spencer who had already written along evolutionary lines in his book *Progress: Its Law and Cause* which had been published in 1857. In that period individual-

[1] For general descriptions of the period during which the evolutionary hypothesis was in process of formation see Loren Eiseley's *Darwin's Century*, Jacques Barzun's *Darwin, Marx and Wagner* and the article by Robert Scoon in Stow Persons, ed., *Evolutionary Thought in America*. Büchner's book appeared in 1885; he followed it up with other works in the interests of materialism. Condorcet's *Sketch* was first published in 1795. There is a recent (1955) translation of it by June Barraclough. The Count de Buffon (1707-1788) suggested that animal species might be arranged in a temporal series stemming from a common ancestor but he was under the impression that revealed truth taught otherwise. The Chevalier de Lamarck (1744-1829) expressed his views in his *Zoological Philosophy*. His evolutionary theory is characterized by use inheritance. Erasmus Darwin's (1731-1802) highly original ideas are contained in his *Zoonomia* and in a poem, "The Loves of the Plants" of which there is a parody in the *Anti-Jacobin* entitled "The Loves of the Triangles." The statement about Erasmus Darwin is from E. Krause, *Life of Erasmus Darwin*, p. 132. Barzun describes the use of the idea of growth by eighteenth-century historians and publicists in the work referred to above, pp. 38 ff. Hegel's theory is contained in his *The Philosophy of History*; Comte's in his *Discours sur l'Esprit Positif* (1844). Scoon cites the passage from Disraeli's *Tancred* in the article mentioned above, p. 13.

ism, complete liberty, was the current liberalism and the more advanced shared Spencer's views on the role of the state as they had been set forth in his book, *The Man Versus the State,* of 1884. The state was to be restricted for all practical purposes to keeping the peace and individuals were to be left as free as possible as they competed for the various rewards that were available. This idea of the purpose of civil society fitted quite well with the Darwinian picture of life among the plants and animals and the latter had considerable influence on Spencer's thought as that was elaborated in his *Synthetic Philosophy*. According to Spencer, life progressed from incoherent homogeneity, the protozoa, to a coherent heterogeneity, the higher animals and man. The final result of this process was civil society in which, as in the organisms, a state of equilibrium was eventually to be achieved which Spencer described as being one of "the greatest perfection and the most complete happiness."

This system of thought in which, apparently, deterministic materialism and the idea of progress were reconciled, was much better received in the United States than it was in England. Spencer's individualism and optimism were very congenial to American minds nurtured on the theology of the dissenting denominations, many of them millennial in character, which had stressed the desirability of no organization, or as little as possible, in matters spiritual. In particular, the ideas contained in Spencer's writings were highly satisfactory to the men who were exploiting, or who hoped to be able to exploit, the resources of the country in the years after the Civil War. They had no desire to be hampered by government, though they were not averse to having government assist them. It might be said that Spencer told many an American of that day what he wanted to hear and he told it to him in the language of science at a time when that idiom carried great prestige and when the intellectual roots of traditional Protestantism were withering.

The American business scene in the seventies and eighties of the nineteenth century, with its Vanderbilts, Goulds, Drews, Fisks, bore a close resemblance to the world Darwin had described. It was an era of intense competition in which the prizes went to the strong and, in many cases, the unscrupulous. It is not surprising that, while the average business man was not given to rationalization, the ideas put in circulation by Darwin and Spencer should have been made use of

by the more reflective among them. Rockefeller echoed them in a speech when he explained to his hearers that the growth of a large business was merely "the survival of the fittest." Using the analogy of the American Beauty rose which could "be produced in the splendor and fragrance which bring cheer to its beholder only by sacrificing the early buds" which grew around it, he pointed out that the building up of a great corporation by a similar process was but "the working out of a law of nature and a law of God." Andrew Carnegie, who did for steel what Rockefeller did for oil, was a professed disciple of Spencer and he has described his earnest wish to meet him, one that was gratified, for, he wrote, "seldom has one been more deeply indebted than I to him and Darwin." Not only did evolution free him from "theology and the supernatural," it also provided the premises for his book of essays, *The Gospel of Wealth.* Writing of the "Law of Competition," he admitted that it was "sometimes hard on the individual" but maintained that it was "best for the race" because it ensured "the survival of the fittest in every department." So he welcomed "as conditions to which we must accommodate ourselves" great inequality of environment, the concentration of business, industrial and commercial, in the hands of a few and "the law of competition between these as being not only beneficial, but essential to the future progress of the race." Chauncey Depew, the railroad lawyer, senator from New York and well-known after-dinner speaker, gave voice to the same sentiments when he stated that the guests at the great dinners in New York represented the survival of the fittest and James J. Hill, who should have known, declared that the law of the railroad business was the survival of the fittest.[2]

It is not surprising that the ideas entertained by the leading businessmen of the century should have had their effect on the thinking of their lawyers and, through them, on the law of the land. This was largely done by giving the phrase "due process of law" a Spencerian meaning. The phrase, which has a history reaching back to Magna Carta at least, had been incorporated into the first section of the

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[2] Rockefeller's Sunday School Address is cited by Richard Hofstadter in his *Social Darwinism in American Thought,* p. 31, from William Ghent's *Our Benevolent Feudalism.* Carnegie's remarks are contained in his *Autobiography,* p. 327, and in his *Gospel of Wealth,* pp. 3-6. Depew's statement is taken from his *My Memories of Eighty Years,* pp. 383-4. Hill's remark is cited by Hofstadter, *op. cit.,* p. 31.

Fourteenth Amendment to the Constitution which had been ratified in 1868. This amendment had been prompted by doubts concerning the constitutionality of the Civil Rights Act of 1866 which had barely been passed over President Johnson's veto. By means of the first section of the amendment citizens of the United States were to be protected against infringements of their liberties by state governments. The interpretation of this section of the amendment began in 1873 when the Slaughter House Cases were heard by the Supreme Court. The lawyer for the plaintiffs, ex-Justice of the Supreme Court John A. Campbell, argued that the monopoly of slaughtering given the Crescent City Company of New Orleans by the legislature of Louisiana violated the first section of the Fourteenth Amendment and so was unconstitutional. After having cited Adolphe Thiers' book, *Property*, Turgot, Tocqueville, the historian Buckle, the political scientist Lieber, Lord Macaulay and Coke's report on the Case of Monopolies of 1601, all against such concessions and in favor of liberty of trade, Campbell contended that the purpose of the first section of the amendment was not only to protect the freed Negroes in their newly acquired rights but also to give constitutional embodiment to the theory of *laissez-faire* individualism. It had been freedom, he asserted, "free action, free enterprise—free competition" that the colonizers of the future United States had sought when they had come to the eastern shores of North America. The monopoly granted to the Crescent City Company abridged the privileges and immunities of the United States, it deprived them of liberty and the equal protection of the laws. These rights had been guaranteed to all citizens of the United States by the Fourteenth Amendment and it was the duty of the court to declare invalid the act of the legislature of Louisiana which had created a monopoly and violated those rights.

The majority of the Supreme Court declined to accept this novel line of reasoning and left the slaughterers of New Orleans who were not connected with the Crescent City Company without relief for a number of years. The voice of the future, however, was heard in the dissents of Justice Stephen Field and Justice Joseph Bradley who adopted Campbell's position and developed it further. It would take a number of years before the Supreme Court would make such an interpretation of the due process clause of the Fourteenth Amendment its own and when it did it would be due in no small part to

the efforts of Field who was really more an exponent of the individualism indigenous to the United States than a convert to Spencerian or Darwinian formulas.

An important step toward the court's adoption of such an interpretation was taken in 1885 when the witty and distinguished William Maxwell Evarts appeared before the New York Court of Appeals in a case which involved the validity of a statute of the New York legislature which, as a health measure, forbade the manufacture of cigars in tenement houses. Evarts argued that the law violated the first section of the Fourteenth Amendment because it deprived, unduly, the cigar makers of their liberty to work where they wanted. In his brief he cited the opinions of Field and Bradley in the Slaughter House Case and the argument of Campbell. Judge Earl, speaking for the court, supported Evarts' contentions and backed up the court's judgment with the opinions of Field and Bradley and by references to Adam Smith's *Wealth of Nations*, the Darwinian theory of the struggle for existence and Thomas M. Cooley's *Constitutional Limitations* which by 1885 was in its sixth edition. The drift of this work was that the police power of the state was to be confined as straitly as possible in the interests of individual liberty especially in the economic sphere. "Freedom," the court said, citing Cooley, "is the general rule and restraint the exception." The opinion of the New York Court of Appeals in this case, known as *in re* Jacobs, was soon adopted by the courts of Pennsylvania, Massachusetts, Illinois, Colorado, Missouri, Kansas, Ohio and West Virginia.

The organization of the American Bar Association in 1878 was also effective in spreading Spencerian ideas throughout the bench and bar of the country. Its roster was a very distinguished one. Campbell, Cooley, Evarts and his partner Joseph H. Choate, David Brewer, the nephew of Justice Field and soon to be his companion in arms on the Supreme Court, Christopher Tiedeman whose *Limitations of the Police Power* supplemented Cooley's work, William H. Taft and many others. The papers and addresses of this organization drove home the doctrines of *laissez-faire* individualism, with or without the Spencerian formulas, again, again and again.

The adoption of a Darwinian interpretation of the clauses of the Fourteenth Amendment by the state courts and the leading lawyers of the day was bound to have its effect on the members of the Su-

preme Court of the United States. Also, the personnel of the Court changed a great deal between 1888 and 1898. When the court in 1905, through Justice Peckham, invalidated a New York statute which limited the hours of work in bakeries to ten hours a day because such an exercise of the police power infringed on the liberties of workers in bakeries, Spencerian ideas had won the day.

It was in his dissent to this opinion that Justice Holmes remarked, "The Fourteenth Amendment does not enact Mr. Herbert Spencer's *Social Statics*." Despite the justice's dictum, it would appear that a majority of the court thought it did just that and would continue in that opinion for many years to come. The result was that what is called social legislation was continually invalidated by the courts in the name of a theory which conceived unlimited competition, and not the common good, to be the end of civil society.[3]

Darwinism also had its effects on international relations. In that area, combined with the idea of race it provided a rationalization for the imperialistic ventures of the Western nations in the late nineteenth and early twentieth centuries. This idea of race, to a great extent the fusion of the linguistic findings of the philologists with the physical classifications of the anthropologists, had been popularized by, among others, Count Joseph Arthur de Gobineau whose *Essay on the Inequality of Races* appeared in 1853, six years before the publication of the *Origin of Species*. But Darwinism and a theory of race were hardly contradictory and such ideas as the survival of the fittest could be tailored to racist patterns on the human level without much difficulty. As Aubrey Mennen has remarked in his *Dead Man in the Silver Market*, "Men of all races have always sought for a convincing explanation of their own excellence, and they have frequently found what they were looking for." So the late nineteenth century and the early twentieth saw the appearance of various theories to the effect that by natural selection it was predestined that certain races should ascend the evolutionary tree and that others, owing to their lack of the qualities which led to survival, should fall

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[3] Campbell's argument is analyzed by Benjamin Twiss in his *Lawyers and the Constitution*, pp. 42-62, and by E. S. Corwin in his *Liberty against Government*, p. 119. For the opinions of the judges in the Slaughter House Cases see 16 *Wallace* 36 ff. *In re* Jacobs can be found in 98 *New York Reports* 98. The bakery case is Lochner v. New York, 198 *United States Reports* 45 ff.

behind and ultimately be taken over by their betters for their own good. This theory could be given a theistic turn as was done by the mid-western Congregationalist minister, Josiah Strong, in his book *Our Country,* published in 1885. In this work, a blend of the idea of race, of Darwinian ideas, of the myth of Anglo-Saxon superiority and of the Puritan idea of mission, Strong urged his fellow countrymen to allow the mighty centrifugal tendencies inherent in the Anglo-Saxon stock full play over the rest of the world. Before their triumphant advance unfit, inferior races were bound to give way as the American Indian had. Such ideas were popularized by politicians like Senator Albert Beveridge of Indiana. In a typical statement he once said that the late President Grant "never forgot that we are a conquering race and that we must obey our blood and occupy new markets and, if necessary, new lands. He (Grant) had the prophet's seer-like sight which beheld, as part of the Almighty's infinite plan, the disappearance of debased civilization and decaying races before the higher civilization of the nobler and more virile types of men." The conclusion to this and much more fustian was that the United States should hold and govern the Philippine Islands. Such ideas also influenced the thought of the naval historian, Alfred Thayer Mahan, whose works, beginning in 1890 with *The Influence of Sea Power upon History, 1660-1873,* so impressed the military of the various countries of the world during this period. These ideas also loomed large in the propaganda of the Immigration Restriction League which was organized in 1894 and they were the main arguments advanced in favor of the restriction of immigration in the 1920's. Madison Grant, a New York lawyer, was most active in spreading racist ideas. He published a book, *The Passing of the Great Race,* in 1916. According to Grant, races varied greatly in quality and only superior races, like the Nordic, were capable of founding great civilizations. Racial purity, he stated, echoing Gobineau, was essential to human endeavor and ethnic intermixture led to decay. Applying this idea to the United States, Grant depicted the descendants of the seventeenth and eighteenth-century immigrants as the country's saving remnant. Their ancestors had been Nordics and it was they who founded the present greatness of the country. Immigration, by allowing inferior races into the country, had already sapped the pristine vigor of the American population. It was about to over-

whelm the ever-narrowing Nordic element and should be stopped. The fittest apparently need more than natural selection to survive.

As Loren Eiseley has remarked, Darwin, while not responsible for the grosser philosophical sins of some of his followers, did incorporate into the *Origin of Species* a powerful expression of the utilitarian philosophy of his time. He devoted very little attention to the forces in nature leading to cooperation and emphasized selfish motivation. The strain of pessimistic determinism which was current in his time was fully reflected in his writings. He leaned heavily on the gloomy prognostications of Thomas Malthus as they were set forth in the *Essay on the Principle of Population as It Affects the Future Improvement of Society with Remarks on the Speculations of Mr. Godwin, M. Condorcet and Others,* which first appeared in 1798. The previous century had been unduly optimistic and the pendulum was swinging far to the other extreme. A passionate Darwinian like Edward L. Youmans could solemnly assure the reformer, Henry George, that there was absolutely nothing he could do about graft in New York City but wait, he did not say whether in this world or the next, for natural selection to take its course. Evolution also, as Eiseley comments, "is an idea that has seemed to many to condemn man to the life of a beast and there are those who have ordered their days accordingly." But this has not been the only fruit of the evolutionary hypothesis, generally understood, and not as Spencer reworked it and applied it to society. There is a dynamic as well as a static aspect of the idea and the open universe of James and Bergson, the Heraclitean interpretation as opposed to the Parmenidean, became a basis for the arguments of those who thought that something could be done besides waiting for the operations of natural selection.[4]

[4] Mennen's observation is on p. 1 of the work mentioned. The citation from Beveridge can be found in Claude Bowers, *Beveridge and the Progressive Era,* p. 68. Eiseley's remarks are contained in the work mentioned, pp. 348 ff. The encounter between George and Youmans is described by the former in his *A Perplexed Philosopher* which is cited by Hofstadter, *op. cit.,* p. 34.

Perhaps it is time to pronounce a Valediction affirming the immortality of the deep and valid relation between Donne and the later age that loved him.

DONNE AND THE MEDITATIVE TRADITION

LOUIS L. MARTZ

IT HAS NOW BEEN NEARLY forty years since that memorable date, October 20, 1921, when T. S. Eliot publicly observed that Donne and his fellow poets could "feel their thought as immediately as the odour of a rose."[1] It is a date worthy of some ceremony, since no critical remark of our century has had a more profound effect upon the study of English poetry, and, more important, upon the writing of English poetry. Eliot's essay on "The Metaphysical Poets" came, Mr. Duncan has shown, as a culmination and a focusing of blurred and flickering insights that had been developing throughout the late Victorian and the Edwardian eras: Arthur Symons as far back as 1899 had found in Donne's poetry a "rapture in which the mind is supreme, a reasonable rapture." "This lover loves with his whole nature, and so collectedly because reason, in him, is not in conflict with passion, but passion's ally."[2] Issuing, then, as the major voice of this long-developing view, Eliot's twin theories of the "unification of sensibil-

[1] T. S. Eliot, "The Metaphysical Poets," *Selected Essays* (New York: Harcourt, Brace, 1932), p. 247; originally published as a leading article in the *Times Literary Supplement*. (The present paper represents a revision of a talk delivered at the meetings of the Modern Language Association, December, 1958.)

[2] Joseph E. Duncan, "The Revival of Metaphysical Poetry, 1872-1912," *PMLA*, 68 (1953), pp. 658-71. Arthur Symons, "John Donne," *Fortnightly Review*, n.s. 66 (1899), p. 741.

ity" and its subsequent "dissociation" were bound to have "a success in the world astonishing to their author," as Eliot observed in 1947, when he permitted us to read John Milton once again.[3] But these theories about the "fusion of thought and feeling" have now clearly run their course. Within the past few years Mr. Kermode has assured us that the whole hypothesis was only a fallacious effort to find historical justification for the Symbolist aesthetic of the Image. Mr. Unger has argued that "there was no unique fusion" in Donne's poetry, no evidence of "unified sensibility," but only "an urgent search for unity." And Mr. Hunt, who deeply admires Donne, nevertheless has told us that for true unification we ought to look toward Spenser and Milton, for Donne was a poet of extraordinary limitations: "an ear relatively dull to the sonorities of language; a limited sensory response and an insensitivity to many subtleties of emotion; a lack of pleasure in the beauties of the natural world and an inability to invest its physical facts with the aura of the romantic imagination; an absence of any strong feeling for the cultural traditions of his own civilization, or of any strong sense of personal community with the rest of mankind; and a certain deficiency in human sympathy."[4] Yes, there are signs, clearly, that before long a new exemplar of true poetic unification will be found in Percy Bysshe Shelley, and that Donne will prove most lamentably dissociated—if not utterly dismembered. It seems that the "naked thinking heart" of Donne's poetry can offer little to those who seek again that old embroidered coat that Yeats and Donne both cast away. Perhaps it is time, then, to pronounce a Valediction, in Donne's own kind, admitting mutability in the world, but affirming the immortality of certain true relationships—in particular, the deep and valid relation between Donne and the later age that loved him: an age that might have applied to Donne's poetry these lines from Donne's own "Valediction: of the book":

> When this booke is made thus,
> Should againe the ravenous
> Vandals and Goths inundate us,

---

[3] T. S. Eliot, "Milton II," *On Poetry and Poets* (London: Faber, 1957), p. 152.

[4] Frank Kermode, *Romantic Image* (London: Routledge, 1957), Chap. 8. Leonard Unger, "Fusion and Experience," *The Man in the Name* (Minneapolis: University of Minnesota Press, 1956), p. 123. Clay Hunt, *Donne's Poetry* (New Haven: Yale University Press, 1954), p. 148.

Learning were safe; in this our Universe
Schooles might learne Sciences, Spheares Musick, Angels Verse.

The timing of Eliot's famous essay indicates the basis of this liaison. The essay came, in 1921, just as William Butler Yeats was deep within the composition of his private guide to "Unity of Being," *A Vision,* which appeared in 1925; in composing the *Vision,* Yeats tells us, he learned from his mysterious teachers that he must, in effect, feel his thought, or, in his own words, "give concrete expression to their abstract thought." ". . . and if my mind returned too soon to their unmixed abstraction they [his 'communicators'] would say, 'We are starved.' "[5] The essay came, too, as I. A. Richards was conceiving his *Principles of Literary Criticism,* which appeared in 1924, offering us the poetry of "inclusion," as represented in Donne's "Nocturnall upon S. Lucies day"; such poetry, for Richards, offered a way by which modern man might achieve the "resolution of a welter of disconnected impulses into a single ordered response"—with the resultant consciousness of "completed being" that for Richards comes from participation in the greatest art.[6]

That Donne seemed to answer this general quest for unity of being is made especially plain by Eliot in a note on Donne that he wrote for *The Nation and the Athenaeum* in 1923, by way of "inquiry into the reasons for Donne's present popularity." Casting aside all matters of mere fashion, all accidental relationships, he asserts the one basic cause: Donne's "mind has unity and order." "The range of his feeling was great, but no more remarkable than its unity. He was altogether present in every thought and in every feeling." Our age, he says, "objects to the simplification and separation of the mental faculties." "Ethics having been eclipsed by psychology, we accept the belief that any state of mind is extremely complex, and chiefly composed of odds and ends in constant flux manipulated by desire and fear. When, therefore, we find a poet who neither suppresses nor falsifies, and who expresses complicated states of mind, we give him welcome."[7] The last sentence might almost have been written by Richards.

What Eliot, and Richards, and Yeats all admired in Donne has

[5] W. B. Yeats, *A Vision* (New York: Macmillan, 1938), p. 12.

[6] I. A. Richards, *Principles of Literary Criticism* (New York: Harcourt, Brace, 1948), Chap. 32.

[7] T. S. Eliot, "John Donne", *The Nation and the Athenaeum,* 33 (1923), pp. 331-2.

been brilliantly summed up by Wallace Stevens when he wrote that modern poetry must give "The poem of the mind in the act of finding/What will suffice." We must emphasize the *act of finding*. For Donne presents the very process by which unity of mind is discovered: he does indeed, as Mr. Unger says, present the search for unity, in all the agony of its exploration, but in the end of every great poem that he wrote, his speaker has discovered "what will suffice":

> If our two loves be one, or, thou and I
> Love so alike, that none doe slacken, none can die.
>
> But wee will have a way more liberall,
> Then changing hearts, to joyne them, so wee shall
> Be one, and one anothers All.
>
> Let us love nobly, and live, and adde againe
> Yeares and yeares unto yeares, till we attaine
> To write threescore: this is the second of our raigne.
>
> But wonder at a greater wonder, for to us
> Created nature doth these things subdue,
> But their Creator, whom sin, nor nature tyed,
> For us, his Creatures, and his foes, hath dyed.
>
> And, having done that, Thou hast done,
> I feare no more.

After so many decades of talk about Donne's "anguish of the marrow" and the contraries that met to vex him, it is perhaps too easy to forget the noble serenity of these conclusions; yet the movement from anguish and vexation to the finding of what will suffice is the essential action of Donne's poetry and of his entire life. Whether it is the early "Satire 3," or the late "Anniversaries," or the even later (I think) "Nocturnall upon S. Lucies day," the essential action of the mind is the same. The typical Donneian poem opens with a searing vision of the follies and foibles and infidelities of the world, sometimes given in a comic tone, as in "The Sunne Rising," where that "pedantique wretch," the sun, insists on arising punctually, only to reveal the sorry world of time-servers:

> goe chide
> Late schoole boyes, and sowre prentices,
> Goe tell Court-huntsmen, that the King will ride,
> Call countrey ants to harvest offices;
> Love, all alike, no season knowes, nor clyme,
> Nor houres, dayes, moneths, which are the rags of time.

Or it may be the fierce and bitter opening of a Holy Sonnet:

> If poysonous mineralls, and if that tree,
> Whose fruit threw death on else immortall us,
> If lecherous goats, if serpents envious
> Cannot be damn'd; Alas; why should I bee?

Or it may be the sombre vision of universal decay in the "Nocturnall":

> The Sunne is spent, and now his flasks
> Send forth light squibs, no constant rayes;
> The worlds whole sap is sunke:
> The generall balme th' hydroptique earth hath drunk. . . .

But whatever the mood and tone, whatever the vision of time and decay, whatever the era of Donne's life, "the poem of the act of the mind," as Stevens would call it, moves steadily onward to the finding of what will suffice. Sometimes it is found in carnal love:

> This bed thy center is, these walls, thy spheare.

Sometimes in the operation of Grace:

> That thou remember them, some claime as debt,
> I thinke it mercy, if thou wilt forget.

Sometimes in death and the after-life:

> Since shee enjoys her long nights festivall,
> Let mee prepare towards her, and let mee call
> This houre her Vigill, and her Eve, since this
> Both the yeares, and the dayes deep midnight is.

Why should we find, nowadays, a tendency to deny unity to the mind that could execute so perfect a movement? For two reasons, I believe. First, because Eliot's theory of unification and dissociation was grossly unfair to Milton and other poets: in an effort to defend Milton, or Dryden, or Shelley, critics have been led to counterattack. More important, however, is a serious fallacy in the assumption that underlies most criticism based on the doctrine of the unified sensibility. The assumption is implicit in Eliot's phrase "mechanism of sensibility"; in Williamson's view that the fusion of learning and passion in Donne was "spontaneous and natural"; in Ransom's early contention that the term "metaphysical" ought to be equated with "miraculous," since the unity in metaphysical poetry was achieved by a "mir-

acle" of metaphor.[8] All these views assume that Donne's alleged power of unification was something given, native, inherent in the fortunate man and the more fortunate age; something inexplicable and magical that Donne and his age possessed, and we do not. This attitude is not very far from Matthew Arnold's weary cry in "The Scholar Gipsy": "O Life unlike to ours!" "Thou hadst *one* aim, *one* business, *one* desire"—"And we imagine thee exempt from age . . . Because thou hadst—what we, alas, have not!"

But such a view will not describe the action of Donne's poetry. The unity enacted within his poetry was not a gift: it was a unity achieved in much the same way that Eliot and Yeats and Hopkins and Paul Claudel were later to follow—the way of arduous and disciplined meditation. It is ironical that Eliot, around 1930, should have lost his early confidence in Donne, just as he himself was beginning to follow a mode of inner life that Donne had known from his childhood; yet Eliot almost predicted this result in his note of 1923, when he concluded: "We cannot have any order but our own, but from Donne and his contemporaries we can draw instruction and encouragement." The encouragement, we may say, came from Donne and his fellow poets; the *instruction*, toward a unified meditative poetry, came primarily, it seems, from a Spanish contemporary of Donne's who died in 1591: St. John of the Cross. Eliot's debt to the spiritual writings of St. John of the Cross has been widely recognized by the commentators on *Ash Wednesday*, *Murder in the Cathedral*, and the *Quartets;* the debt extends even to the essential organization and inner process of the *Quartets*, which enact a spiritual progress from meditation to contemplation, after the manner prescribed by St. John of the Cross in his subtle treatises of self-analysis.

If this is so, then the total careers of Donne and Eliot bear the most profound analogy; both, we may say, spent their lives in an arduous effort to achieve the state of mind described by Paul Claudel in his prose meditation, *A Poet before the Cross*, where Claudel envisions a state of mind which is "both infinitely multiple and intensely one." "From the north to the south, from alpha to omega, from the east to the west, all is one with us, we are clothed with it, we instigate it, we

[8] Eliot, *Selected Essays*, p. 247. George Williamson, *The Donne Tradition* (Cambridge: Harvard University Press, 1930), p. 48. John Crowe Ransom, *The World's Body* (New York: Scribner's, 1938), pp. 133-42.

are both revealed and humbled in this orchestral operation. . . . Our brief blind impulses are wedded, revived, interpreted and developed in immense stellar movements. Outside of us, at astronomical distances, we decipher the text microscopically inscribed in the bottom of our hearts." "With all our senses we shall contemplate the first cause." We shall work "with an intelligence so clear and informed that it will become as immediate as sensation is in us, with a fidelity of all our being, with a will as prompt and subtle as the flame of a fire."[9] Those words of Claudel, written between 1933 and 1935, at the height of the vogue for Donne, describe the central action of all meditative poetry, the central action of Donne, Herbert, Crashaw, Vaughan and Marvell, the central action of Hopkins, Dickinson, Yeats, Eliot and Claudel.

If I seem to be exaggerating the importance of the act of meditation for the poetry of Donne, we may turn to Donne's own testimony in a verse letter to Rowland Woodward, written, it seems, while Donne was in his early thirties. It is a poem that displays the typical Donneian movement. It opens with the usual satire against the infidelities of the world (including himself):

> Like one who'in her third widdowhood doth professe
> Her selfe a Nunne, tyed to retirednesse,
> So'affects my muse now, a chast fallownesse;
>
> Since shee to few, yet to too many'hath showne
> How love-song weeds, and Satyrique thornes are growne
> Where seeds of better Arts, were early sown.

Where seeds of better Arts, were early sown. What were these better Arts that came before the love-songs and the satires? The rest of the poem seems to tell us. They are the arts by which, "If our Soules have stain'd their first white, yet wee/May cloth them with faith, and deare honestie." And the method?

> Seeke wee then our selves in our selves; for as
> Men force the Sunne with much more force to passe,
> By gathering his beames with a christall glasse;
>
> So wee, If wee into our selves will turne,
> Blowing our sparkes of vertue, may outburne
> The straw, which doth about our hearts sojourne. . . .

[9] Paul Claudel, *A Poet before the Cross,* trans. Wallace Fowlie (Chicago: Regnery, 1958), pp. 92-3, 150-1.

> Wee are but farmers of our selves, yet may,
> If we can stocke our selves, and thrive, uplay
> Much, much deare treasure for the great rent day.

It seems fair to say, then, that John Donne's literary career, like that of Eliot, or Yeats, or Claudel, or Hopkins, represents a record of the farming of the self, the stocking of the self, the gathering of the beams of the self into one intense and burning focus. And if such ways of meditation, as Donne seems to say, were learned by Donne *before* the writing of his love-song weeds and satiric thorns, it will not be illegitimate to expect some impact of this meditative discipline upon the writing of those songs and satires. This is not to argue that the "Songs and Sonets" are really religious meditations in rake's clothing; though I believe that the "Nocturnall" is a deeply religious poem, that it deals with the death of Donne's wife, and that it was therefore written *after* most of the Holy Sonnets. But for most of Donne's love-poetry and satires, one should say no more than this: that it is the inward farming of the self which gives these poems their distinctive structure, direction, and inclusiveness.

It is upon this inward base that most of Donne's poems organize themselves: the strong satirical texture that runs throughout his poetry forms an essential part of the inward quest. The universe cannot be reorganized about an inward center unless the outward straw "which doth about our hearts sojourne" is first burned away. The "naked thinking heart" will not reveal itself without this burning. One is reminded of Eliot's strong satirical vein, and of Claudel, who in the midst of a meditation on the words, "My God, My God, why hast thou forsaken me?" is able to give us the following satirical disquisition:

> What? What is he saying? . . . *Eli* . . . *Eli*. . . . Did you hear what he just said? No, but did you hear it? Allow me, gentlemen and dear colleagues, to call your attention to the decisive confession which the inexorable torture of scientific investigation has just snatched from ignorance and superstition and imposture. . . . I am sure that the root *El* we find on Sumerian inscriptions and Arabic tombs will intrigue the old campaigners of Semitic philology. Whether you see in it a Mesopotamian totem, or a Hittite allusion, or a Moon lover, it is undeniable in any case that in this syllable which has so curiously reached our ears you find the origin of that *Elohim* which in opposition to *Jahveh*, has generously stained in blue the pages of our polychrome Bible.

. . . I consider the form *Sabachthani* doubtful and even shocking, and I am almost ready to agree with delightful Professor Pumpernickel who finds in it a Galilean deformation. *Eli, Eli,* or *Eloi* (another form of the vocative) *why have you abandoned me?* Why did he abandon our attractive subject? I see, gentlemen and dear colleagues, and you, ladies who grace this meeting, by the smiles on your faces, I see that no one of you would be embarrassed to answer this naive question. *(op. cit.,* pp. 124-5).

The colloquialism, the range of the learning, the bitter ironies are akin to Donne; and if this tirade furthermore reminds us of the speeches of Eliot's Knights in *Murder in the Cathedral,* the reminiscence may be more than coincidental. Such racy outbursts are likely to play an important part in any meditative vision of the world.

So then, one might use the word "meditative," rather than "metaphysical," in discussing these poets, for "meditative" seems to point directly toward the inner organizing principle of this poetry, and thus to provide a term of greater discrimination. It might be said, for example, that Ransom and Tate, or Auden and MacNeice, are modern metaphysicals, just as Sam Johnson could find "the metaphysick style" in Donne, Ben Jonson, Suckling, Waller, Denham, Cowley, or Cleveland. But of all these poets only Donne and Tate could truly be called *meditative* poets. The term "meditative," as I see it, does not serve to replace the term "metaphysical"; it rather intersects the term "metaphysical," and serves a different purpose by associating Donne with a particular tradition in European culture. Reading Donne in the context of European meditative literature may help us to see more clearly the nature of his greatness, and to grasp his firm centrality in the life of his age and our own. It may even help to preserve Donne's poetry against the encroaching shadow of myths and archetypes.

But can we ever give a satisfying and precise definition of meditative poetry? We might begin by saying that meditative poetry displays an actor who, first of all, seeks himself in himself; but not because he is self-centered in our sense of that term—no, he seeks himself in himself in order to discover or to construct a firm position from which he can include the universe. If we go on to seek for a more detailed definition, we may find it in the following words of Paul Claudel, who may be found speaking here with the voice of all meditative poetry:

> Thus we understand that the soul is not . . . a kind of fluid fabricated somehow or other which the body yields like a gas-generator. On the contrary, everything takes place as if there were a motor-directive principle governing our organized matter, and as if there were in us someone who is master and who knows what he has to do with everything. It is not our body which makes us, it is we at each second who make our body and who compose it in that attitude adapted to every situation which we call sensation and perception. It is not movement which drags us along in an irresistible flow. Movement is at our disposal. We can exploit it. We who are able to oppose and stop it, and, by using a free and limitless choice, impose on our perceptions the firm pattern of a concept, of a figure, of a will (*op. cit.*, pp. 196-7).

It is, at least, exactly what the last generation found remarkable in Donne: that he could impose on his perceptions "the firm pattern of a concept, of a figure, of a will."

FEATURE REVIEW

ENCICLOPEDIA FILOSOFICA

ALFRED DI LASCIA

I

IN ITS NATIVE DIALECTICAL movement from aspiration to achievement the human spirit finds itself caught in a perennial tension between search and system as the singular truths successively discovered compete for priority of incorporation into some kind of philosophical structure. Without a joint aporetic disposition toward being and an ontological expectancy of the true, philosophical speculation cannot get under way. And although a conscientious reading of the history of philosophy shows that neither exigency has ever held uncontested sway, the search for rational systematization has provided the greater challenge, for system-builders tend to be especially sensitive to the temptation of systematic rationalization. From the grand *Encyclopédie* to the unfinished *Encyclopedia of Unified Science* the challenge has not gone unanswered, although the two major responses which we have cited have not been altogether satisfactory; for the one work bears undeniable importance as an ideological precipitant of a major conquest in man's gradual achievement of political freedom, but has little if any genuine *philosophical* significance, while the other is a convenient codification of methodological questions concerning scientific problems, and exhibits little if any sensitivity to meta-scientific exigencies. Moreover, both Encyclopedias suffer from a metaphysical myopia which seriously distorts their historical perspective. A worthy response to the great challenge has been slow in the coming but come it finally has, in the form of the *Enciclopedia Filosofica*[1] under review (henceforth identified as *E.F.*).

[1] ENCICLOPEDIA FILOSOFICA. Edited by Centro di Studi Filosofici di Gallarate. Venezia-Roma: Istituto per la Collaborazione Culturale; Firenze: Casa Editrice Sansoni; Vols. I-III, 1957; Vol. IV, 1958. Vol. I, A-Eq: Pp. xxvii, 1958 col.; Vol. II, Er-Le: Pp. xix, 1916 col.; Vol. III, Li-Rei: Pp. xix, 1942 col.; Vol. IV, Rel-Z, Indici: Pp. xix, 1964 col. The set 60.000 lire.

EDITOR'S NOTE: All translations from the *Enciclopedia Filosofica* are by the author of this review.

The *E.F.* is the magistral achievement, some ten years in the making, of those Italian philosophers who have been convening in Gallarate every year since 1945; in mature realization of their vast potential and of the urgency of a critical confrontation of major philosophical problems, these men decided to join their efforts in a vast programmatic statement and critical examination of their own philosophical commitment. And so it was that the original founders of what has become known as the Gallarate movement—Battaglia, Giacon, Guzzo, Padovani, Sciacca, Stefanini—enlisted the cooperation of some six hundred scholars, mainly Italian, for the composition of the *E.F.*

The articles are divided into two major, and one minor category. The *key-concepts* form the theoretical backbone of the work, and range over such items as the fundamental concepts of philosophy, the major philosophical disciplines and doctrinal movements, while the *major philosophers* provide both a historical perspective and a critical control of the theoretical contributions; the third category, *minor articles,* is sufficiently comprehensive to house what amounts to a separate dictionary of philosophical terms, such as analytic definitions, explanations of key foreign phrases and brief bio-bibliographical notes on hundreds of "minor" thinkers. Each major article is so tightly organized and parsimoniously argued as to suggest the unobtrusive presence of a firm and knowing editorial hand. Without the slightest sacrifice to personal stylistic differences, the major articles are finely wrought into a threefold pattern since each is written with admirable clarity and conciseness; organized into distinct but inseparable historical (expository) and theoretical (speculative) sections; enriched by comprehensive and up-to-date bibliographies. Two additional points, of methodological interest, are worth underscoring. Specific problems, historically situated, serve as carriers for speculative constructions while theoretical speculation, critically conducted, is rigorously controlled by historical references. Hence it is that such problems as, to choose at random, the finality of Descartes' doubt, the justification of Hegel's dialectics, the function of Plato's ideas, receive extensive treatment in such predominantly theoretical articles as those, respectively, on doubt, dialectics and ideas. In this manner the total space devoted to a given philosopher turns out to be greater than the amount explicitly assigned to him; and since each

major philosopher receives from ten to thirty thinly printed, large columns, the grand total turns out to be generous indeed. Finally, each major contributor practices what might be called an internal, unobtrusive criticism: internal, in that philosophical problems and doctrines are expounded on the precise grounds, assumptions and terminology originally proposed; unobtrusive, in that unilateral and inconsistent arguments are evaluated on the basis of contradictions and inadequacies discovered *within* the relevant doctrines by the aid of critical norms which are neither forced nor foreign.

The major contributors are united in what Battaglia has called, simply but concisely, "a spiritualistic conception of life," in which a critical spirit of free inquiry and an exigency for systematic unity are joined in a delicate plane, in search of the deeper exigencies of a life which, far from being generic, is "highly and subtly Christian, frequently more implicit than explicit, and undoubtedly more reasoned and coherent than openly professed" (*Giornale di Metafisica*, Sept., 1957). That Battaglia's words are not philosophically innocent may be seen by consulting the seminal article "Spiritualismo," in which Santinello argues that it is precisely Christian Spiritualism, commodiously understood, that makes possible a metaphysics of interiority, and that it is this metaphysics in turn that is alone capable of engendering a genuine personalist and philosophical pluralism and of sustaining a total creationistic and transcendent metaphysics.

Although no one contributor nor group of contributors can be singled out as "authorized" spokesmen for the *E.F.*, a significant community of ideas can be identified by a judicious selection of key articles such as those on philosophy and reality (Mathieu), history and the philosophy of history (Petruzzellis), nature, reason, spirit, thought and value (Guzzo and Mathieu); collectively organized, these articles, if diligently read, yield a comprehensive and coherent vision of philosophy understood as a rationally structured yet dialectically free and progressive revelation of the essential meaning of those manifold activities of the human spirit which are radicated in both history and reason. Defined as "the very life of mankind itself, in the totality of its expressions and manifestations," history is marked as the matrix of all human activities ("Storia"), and philosophy as the unique enterprise of instituting "a critical inquiry into the value and meaning of all the singular activities concretely exercised by man . . ." an

inquiry that presses for systematic articulation in a concrete philosophical anthropology that is radicated in a concern for that peculiar Augustinian and Pascalian being, "principle of the infinite . . . and 'a problem unto himself' . . ." ("Filosofia"). This conception of philosophy, uncongenial as it is to many Scholastic and naturalistic philosophers, does not refract philosophical speculation into shifting angles of solipsistic vision; on the contrary, as Mathieu himself insists in "Realtà," it is precisely the whole, uncensored range of things or "reality that every philosophy as such endeavors to establish. . . ." Yet reality is not *altogether* an antecedent, collective datum; its specification is entirely subsequent to philosophical inquiry, for "in advance and outside of precisely such inquiry the concept of reality is undoubtedly meaningless. . . ." Pursuing the same line of argument we should be prepared to admit that neither is reason disjoined from reality, nor spirit from nature; on the contrary, they are intimately joined through that "principle of the infinite," the source at once of discovery and inventiveness, and itself bound to nature through "a profound connaturality which reveals, within nature itself, a product of the spirit, and within the activity of the spirit a production—let us indeed admit—of natures" ("Spirito"). Throughout the several rich and subtle Guzzo-Mathieu articles insistence on the inventive and creative dynamism of the human spirit recurs as a leitmotif that is most refreshing to readers accustomed to a reified way of philosophizing.

Since in the concrete reason is always and irredeemably personal, the crucial problem to be confronted is precisely that of "accounting for the universality of reason, without rendering superfluous the activity of each single finite mind that reasons, inquires, works in time . . . [and] is capable of indefinite progress. . . ." Again, although reason is forever and irreducibly singular, and hence immanent, its immanence is both normative and moral (objective), and is to be sharply distinguished from an immanence that is causal and psychological (subjective); understood as a concrete task or duty to be ethically executed on strictly rational grounds, reason is essentially "a *norm* that is immanent to thought . . . neither extrinsic nor formulable once and for all in transcendental rules, it bears a rightness that is intrinsic in nature and a universality that is qualitative in value." The essential point stands out sharply: "the act of the spirit

is precisely an invention of forms, a creation . . . a something unpredictable . . .," yet the forms freely constructed are instituted for rational solutions of singular and perennially fresh problematic situations. In the twin article "Pensiero," we find a restatement of the leitmotif: "The history of thought does not presuppose a structure of categories already conceived impersonally *ab aeterno*, but a subject who thinks them in the concrete, in contact with experience . . .," and then a decisive elucidation: ". . . as distinguished from divine thought which creates in the very act of thinking, human thought is but an active and originative construction of such possible structures as find unique fulfilment in experience or, taking scientific inquiry in the strictest sense, experiment."

A bold, yet sensitive and salutary, extension of the theme of human creativity is made in the moral sphere where a problem and a paradox immediately stand out the moment it is realized that ideal values are always and uniquely found in singular, historical situations. The problem arises in the dialectical need to respect the parallel autonomy of ideal and historical values without absorbing the historical within the ideal, nor exploiting the historical in order to justfy the ideal; the paradox arises in the dialectical process of acknowledging the truth that the two types of value are at one and the same time necessary and impossible; necessary, because singular, unedited values can never be achieved without the universal and regulative solicitation of ideal values; impossible, because the truth discovered and the good achieved remain eternally incommensurable with the original ideal inspiration. "And so it becomes necessary to acknowledge . . . that no singular person who *has* truth ever *is* one with the truth whence he derives value . . . moreover, a fusing of the two planes, of historical and ideal value, will not only open the way to fanaticism but will close the mind to an understanding of that particular relationship known as value" ("Valore"). Finally, just as the vigorous assertion of the primacy of the creative spirit does not imply a reduction of reality to mind, neither does the integral vindication of historical value imply a denial of either the priority or transcendence of truth, for truth is no simple, be it impeccable, registry of empirical data or, as Bacon would have it, *filia temporis;* it is rather, in Guzzo's ingenious inversion, *mater temporis.*

Convinced of the analogical unity of being and of the necessity of

integral knowledge, the editors of the *E.F.* have invited distinguished specialists to contribute articles on the exact sciences, have enlisted the assistance of competent theologians to elucidate those problems which bear the greatest relevance to philosophy, and have assigned a generous number of columns to Oriental thought. As we read the *E.F.* we find ourselves projected into a living dialogue with the major philosophers, and can actually experience the birth, development and interlinking of their ideas. In this respect, the *E.F.* may be read as a kind of vast critical history of philosophy, distributively conducted and brilliantly executed. In a collective enterprise of such proportions one might expect to find an uneven distribution of articles, and such is indeed the case; yet the level on which the unevenness is pitched is so uniformly high that a search for the exact degree of imperfection becomes churlish and irrelevant. The major authors are first-rate scholars who have already made significant contributions to philosophical literature; and many of their articles are restatements, *in nuce,* of their larger works. In full awareness of the partiality of our selection and with the simple intention of arousing a desire for the original source, we should like to sketch out a few of the more significant contributions.

Writing in the light of his magistral two-volume study of Plato, the late Stefanini contributes a long article (30 columns) in which he establishes the existence, in Plato, of a vital *skepsis* that is openly engaged in a dialectical pursuit of an elusive noetic reality and is articulated in two major alternating and ultimately converging phases; a *metexic-noetic* movement, one that agitates at the very center of Greek necessitarianism, endeavors to exhaust the intellect within the intelligible, while a parallel *mimetic-dianoetic* exigency hesitates to appropriate even segments of reality, in full awareness of the joint ontological-epistemological incommensurability between being and becoming, idea and image. Yet participation there must be, and hence arise the great paradoxes in which "non-being becomes inserted into the domain of being, thereby engendering the dynamism of the immutable, the participation of the un-related, the communion of the One." For an understanding of "the animating secret of the *Dialogues* and of the very spirit of Platonism," Stefanini refers us to *Epistle VII* and suggests that "the mystery that is Plato . . . can be clarified if we remember that the search or *skepsis* is essentially constructive as

it does not sweep away the results achieved one by one, but rather raises fresh questions in order to deepen and enrich them with new insights, in an infinite approximation to truth. Our critical exegesis must find its norm in a survey of the fundamental elements in the Platonic *skepsis*."

Stefanini's insistence on *skepsis* as an indispensable element in Plato's philosophy is generalized as a moment of doubt that is a necessary point of departure for all philosophical speculation in Carlini's inquiry into "Problema," an article which may also be read as an illustration of our previous observation concerning the growing dimensions of parallel articles. Carlini writes of *skepsis* as Plato's "imperishable glory . . . the *Dialogues* propose perspectives rather than definitive conclusions . . . the ferment of thought is inexhaustible: in this respect nothing is comparable to these writings in the whole of philosophical literature. . . . And the problems posed by Plato have remained fundamental for human thought, problems such as the principles of true knowledge, of our moral conduct, of the destiny of our existence beyond death." Yet, in fulfillment of the overarching exigency of search and system, Carlini discovers a more rigorous formulation of the problem of doubt in the "scientific" speculation of Aristotle and St. Thomas, and admits that St. Thomas' rigorous methodology "meets the most modern critical demands; indeed, it is St. Thomas himself who has given us the first clear example of such a critical procedure." And again a previous observation, the one concerning internal criticism, is illustrated here, for Carlini's own variety of Christian Spiritualism moves within a specifically Kantian setting. That an insistence on the necessity of doubt is not restricted to philosophers in the "spiritualist" tradition may be seen by reading the article on doubt by Viglino of the Pontifical Atheneum "Propaganda Fide." Through a subtle and yet comprehensive analysis of its multiple and conflicting meanings, functions and limitations, Viglino acknowledges doubt to be a necessary dialectical phase in knowledge, and rests his case largely on specific texts in St. Thomas: "In view of the manifold subjective-objective articulation of truth in time (both individual and social), doubt emerges as an essential moment for establishing, developing and deepening truth. Without the aporetic moment neither science nor philosophy is possible (this is the immortal teaching of Socrates)." In rounding out our discussion of

doubt, we should notice how a systematic reading of the *E.F.* can yield a composite and coherent view on any given major philosophical problem; by consulting Mazzantini's analysis of "Evidenza," for example, we discover a fresh restatement of the familiar theme that Socrates' fundamental vision consists in his belief that objective evidence, i.e., truth, can be achieved only "within the intimacy of a subjective certitude that has been thoroughly scrutinized;" and by reading Faggin's inspiring study of Socrates we are dramatically projected into the life and death of the Great Gadfly.

Writing in the light of *Il Pensiero di Spinoza,* A. Guzzo (in collaboration with Mathieu) comes directly to grips with two crucial difficulties which he has perceptively uncovered at the heart of Spinoza's system: (1) the passage from the infinite to the finite is simply acknowledged as an empirical event; it is not rigorously deduced as a necessary consequence of the initially defined nature of the infinite, and hence remains suspended in mid-air, unjustified on Spinoza's own premises; (2) within the rigorous concatenation of human passions Spinoza binds hatred received to hatred given, yet admits that it is possible to initiate an act of love in return for one of hatred; and at this precise point the logical consistency of his necessitarianism comes to grief, for the appearance of one single *potest* within the sphere of rigorous causation suffices to break the inexorable consequences postulated; the free insertion, again on Spinoza's own premises, stands out, unwarranted in its singular appearance.

The Orientalist G. Tucci has condensed the substance of his *Storia della filosofia indiana* into an admirable survey of the general characteristics and major tendencies of Indian philosophy; enriched by original field research in India and Tibet and a vast primary knowledge of Oriental sources, Tucci identifies the central intuition of Indian philosophy as one sustained soteriological concern with ways of achieving rational entry *into* reality by way of a concretely lived vision of truth, or *darsana,* which is to "provide the logical means of making us know truth," and which must finally transcend rational arguments by "giving way to that *anubhava,* or experience which transforms truth into life." Central as belief in *Karma* is to Indian spirituality, it is in the *Upanishads* that we discover the presence of "what will become one of the most fruitful motives in Indian thought and spirituality, the idea of that intimate personality (called now

thought, now conscience, now brahman) which is the perennial and indestructible subject of every act of knowing and, through that very act, of everything which exists."

The late Capone-Braga has utilized the substance of his critical history of dialectics — *Della dialettica* —to elucidate that difficult problem in a long article (20 columns) which concludes with the observation that "the principles of Aristotelian logic have emerged sane and safe from many dialectical storms," and that the concrete, existential development of dialectics "must be founded on a transcendent principle, in order not to remain absurd and unintelligible." Other major statements *in nuce* of fundamental secondary works must, unfortunately, be barely listed: Carlini's "Locke" is a generous summary of his two-volume *La filosofia di G. Locke;* Barone's compact critical history of logical positivism ("Neo-positivismo") should provoke a desire for the master work *Il neopositivismo logico,* which has already received the highest praise from both Carnap and von Wright; F. Amerio's "Vico" is especially important for its clarification of the transcendent role of Providence in Vico's philosophy of history. It is a sad commentary on our American enterprise and growing concern with scholarship that not one of the former works has been translated into English, although Guzzo's study of Spinoza has enjoyed the personal patronage of A. E. Taylor, who had actually begun an English translation himself, and Stefanini's *Platone* lies dormant in an English translation *privately* undertaken a few years ago by one Professor Fox, of Australia.

II

As every determination necessarily entails a negation, at least in one major philosopher's opinion, so our decision to isolate a few articles necessarily entails the exclusion of scores of others that are equally significant. But we can at least outline, by a sort of laboratory sampling, some of the fresh and rich insights which course throughout the *E. F.:* M. M. Rossi's insistence on the deeper exigency of empiricism when understood as a process for purifying the senses of bondage to the immediately given and as a dialectically necessary state in advancing meta-empirical statements ("Empiricismo"), and his critical utilization of Lovejoy's famous discovery of thirteeen varieties of pragmatism ("Pragmatismo"); Colombo's sensitive in-

corporation of the positive value contained in situational ethics in so far as it calls attention to individual responsibility and divine invocation ("Etica della Situazione"); Carlini's judicious utilization of Thomistic and Kantian themes in accentuating the interiority and dynamism of truth, and in acknowledging the singular originality of the *De Veritate* in presenting "the problem of truth in a decidedly critical sense," and "the essentially active role of the intellect in interpreting and reconstructing reality . . ." ("Verità"); Faggin's utilization of Fichte to say, simply but sharply, that the history of the concept of love is one and the same as the history of man ("Amore") which must be placed alongside Carbonara's short but far-reaching assertion that "the history of philosophy is one and the same with the history of the concept *concept*, itself a key to the study of philosophy . . ." ("Concetto"); Stefanini's identification of two major traditions in the involuted history of aesthetics and criticism: (a) an aesthetics of vision that is spectator-bound and classical in origin and inspiration finds a parallel in a *critica della capienza* which legislates objective norms for the determination, if not precise measurement, of the degree of deviation from or proximity to the proposed rules and which at the same time fails to raise any difficulties since all problems are antecedently resolved on extra-empirical grounds; (b) an aesthetics of expressiveness that is creatively free and essentially Christian in origin and inspiration finds its critical counterpart in a widely inspired Renaissance-Romantic *critica dell'esperienza* which presupposes a direct encounter with the singular work to be judged and which by that very fact raises a problem within itself in so far as it seeks to derive, out of the contingent and fleeting testimony of "taste," a judgment of value that is at once necessary and universal; finally, at the very heart of modern aesthetics Stefanini discerns "a slow ascent towards a speculative conquest of the riches revealed by and in the Christian *verbum*" ("Estetica" and "Critica d'Arte"). In their joint *meditatio mortis* ("Morte") Faggin and Severino employ Schopenhauer's remarks that "death is the inspiring force of philosophy . . . [and] all religions and philosophies constitute a counter-poison to the certainty of death," to show the central concern of religious and metaphysical speculation with "the soteriological and eschatological problem of death," and to advance a suggestive sketch of those solutions to the problem of death which were already

present in Greek philosophy and have remained fundamental throughout the history of philosophy: "the Orphic-Platonic or soteriological, the Heraclitean or dialectical, and the Democritean or materialistic interpretation"; and claim that by "extending and elevating to a supernatural plane the Orphic-Platonic message" Christianity announces that "the meaning of death is not naturalistic but rather spiritual, i.e., ethical and soteriological." The overarching unity of the *E. F.* is admirably revealed in Mazzantini's far-reaching distinction (in "Tutto") between a totality understood as an aggregate of interchangeable parts, and hence closed (the *pan* of both Plato and Aristotle), and a totality experienced as an organic, developing uni*fying* of parts, and hence open (the *holon* of both Plato and Aristotle).

In accordance with our practice of controlling our own statements by concrete references to apposite articles, we should like to utilize some passages from two key articles, on the history of philosophy (Petruzzellis) and the teaching of philosophy (Moschetti), in rounding out our discussion of the relationship between philosophy and history. "As with all of history and science, the history of philosophy is subject to the movement of history itself, and cannot be put into a final edition of *ne varietur* . . . as all history, it is made up of moments of progress and retrogression, of success and failure . . . [and] is the history neither of truth nor of error but rather of the efforts achieved by man in his conquest of truth. . . ." Salutary as this Sturzian vision of history and philosophy is, we should find even greater inspiration in the additional observation that ". . . an introduction for the neophyte, a premise for the philosopher, the history of philosophy is an indispensable condition for every further progress in philosophical speculation" (Petruzzellis). The argument is furthered by Moschetti's insistence on the indispensable role of both classical texts and cooperative effort in philosophical studies: ". . . nobody can be himself if he repudiates the experience of others. . . . What matters is the avoidance of institutional teaching for it is not *theoria*, already done and finished that has didactic value but rather *theoresis*, that personal inquiry which is on its way to fulfillment and which is renewed the moment it is freely stimulated by the teacher. . . ." In agreement with Guzzo and Mathieu on this specific point, Moschetti acknowledges "the necessity of an ethical disposition at the very heart of every theoretical inquiry . . ." and vindicates the twin roles of

search and discovery as he identifies philosophy as "neither an asking that rejects every answer nor an answering that rejects every question . . . neither a relativism which condemns every certitude, nor a dogmatism that condemns every relativity."

Another notable feature of the *E. F.* is the wealth of suggestive clarification of major philosophical problems that have encountered persistent and recalcitrant misinterpretation throughout their careers; and here again our documentation can be no more than allusive. Mathieu argues, in "Intelletualismo," that Greek intellectualism has nothing to do with formalistic and lifeless abstractions arbitrarily imposed on recalcitrant individuals, but that it is essentially an experienced participation in ideas—Plato's forms—"at once concrete and active, and resembling more closely what might be called a work of art than a concept of science." He then vindicates the theoretical vitality of moral intellectualism, understood in its classical Socratic formulation, by calling attention to "that other dialectical exigency" which is usually suppressed or at best underplayed, namely, that "personal participation" which is absolutely essential to the fulfillment of a cognitively intended good; furthermore, "the whole of Greek life is actually dominated by the idea that knowledge is the supreme end of man. But to the Greek knowledge is full activity, and is not opposed to acting as a case of 'mere' knowing; it is, if anything, the purest form of acting, that which is least mixed with passivity." In "Idealismo," Carlini isolates and attacks one of the most insidious and stubborn misinterpretations of a philosopher whom he calls elsewhere, in the authoritative monograph on Kant, "the most important philosopher of modern times"; in reference to the widespread misbelief that Kant constructed a vanishing world, Carlini minces no words: "It is only through malice that one can mistake for subjectivism . . . the statement, in appearance paradoxical, that it is 'not nature which prescribes laws to the understanding but rather the understanding which prescribes laws to nature,' for Kant himself had already clarified this point when he distinguished between *natura materialiter spectata* and *natura formaliter spectata*. . . . ." In concluding his critical assessment of the Ontological Argument ("Ontologico, argomento"), Bettoni proposes a crucial distinction in order to show that the argument can be accepted as "philosophically valid as long as we do not pretend to get out of it more than it can give."

A distinction between "demonstrating God's *existence* and demonstrating His *transcendence* or, more precisely, between demonstrating something which is absolute, and an Absolute that is transcendent" serves as a premise that is necessary to establish "the existence of something absolute that is a *per se notum*, in the sense, at least, that it is impossible to eliminate it from thought, while the transcendence of the Absolute must be demonstrated . . ." (through contingency); in sum, "the argument of the *Proslogion* is rationally valid if it is understood as a reflexive meditation which makes us conscious of the ineradicable exigency and presence of the Absolute." M. F. Sciacca's "Agostino" is a sharply argued and richly documented vindication of that radical *ontological* dimension of consciousness which constitutes man in his deepest nature, and is described as "the greatest discovery of Augustinian philosophy" in so far as it is not only in and through consciousness but precisely "at the most intense moment of interiority that the presence of an Absolute Transcendent reveals itself"; the happy phrase "objective interiority," used in reference to Augustine, is the title of one of Sciacca's own, and to our mind most successful, books.

Since most of the contributors to the *E.F.* are both Christian and philosophers, a faithful reading of their articles will furnish material abundant enough for the formation of an enlightened judgment on the vexed question of the possibility, nature and finality of Christian philosophy. That the Divine has inserted itself into history rather than erupted is the burden of Petruzzellis' disbelief that "for millennia mankind was absolutely deprived of any light concerning the meaning of its life in time," and of his joint belief that "a proper vision of history involves, if anything, a gradually awakened consciousnesss of self . . . it is not so much a new history as a new depth in historical consciousness that Christianity has inaugurated" ("Storia e storiografia"). That Aristotle can "pronounce a hard sentence"—that once a man has voluntarily chosen to become unjust it is impossible for him to change, even should he so will—is due, according to Carlini in "Virtù" to the absence of "a *metànoia* in St. Paul's sense"; and although Aristotle's concept of disposition does adumbrate "an ethics of interiority," his ethics "ignores the principle of freedom (which is to be identified neither with *arbitrium* nor, much less, with 'spontaneity' of will) and hence the truth that the act of the spirit is an

ever new miracle." Carlini's remarks are extended by Moschetti's words about Stefanini: "He believed that the precise aim of education was the maieutic of the person . . .; understood in a Christian sense, this maieutic became sublimated in metànoia" ("Stefanini").

Mathieu's superb analysis of the principal varieties of "Possibilità" may be read along with his monograph "Leibniz" as bearing witness to the speculative vigor that is native to a Christian commitment. In "Leibniz" Mathieu identifies inadequate theological assumptions concerning the relationship between the possible and the real as the cause of the unresolved conflict between a necessitarian metaphysics and a libertarian ethics, while in the wider speculative range of his inquiry into possibility he pursues the dialectical difficulties internal to the classical necessitarian argument of Diodoros—that the actual is the only genuine possibility—and argues subtly for a creationistic theory of possibility, inspired by certain theological texts in St. Thomas "that have furnished philosophy with an incentive for a more subtle consideration of possibility. . . ." We are reminded that "the connection between the concept of possibility and theology that is still evident in Leibniz can be found even later, if we only look carefully, in Kant and Hegel;" furthermore, it is precisely a *philosophical* utilization of Christian speculation on the problem of creation that has made it possible for philosophers gradually to see that an event "must not be understood as a mechanical adjustment of pre-existing parts but rather as the production of something new," and that "possibility is the result—and not a result that is already presupposed—of a creative act, for it is the creator, and the creator alone, who makes possible a given work of art."

That reality is essentially personal is the paradoxical burden of Stefanini's "Persona" and "Personalismo," which are among the richest articles in the *E.F.*, and in which the utter uniqueness of the person is fully accentuated, richly argued and eloquently expressed. Although truncated quotations are misleading, a few remarkable passages do press for attention: "The eye of the intellectualist wishes to see without seeing itself while the eye of Augustine's mind contradicts the laws of physical vision, for it wishes to see itself in order to see. There is no knowledge without knowledge of self, although what one knows is not only the self that is engaged in knowing." *The Confessions* is "superior autobiography that is, without doubt, philosophy

proper," while personalism is "the *deus absconditus* that agitates at the very depths of modern and contemporary philosophy." While Stefanini does acknowledge an incipient and peripheral concern with the problem of personality in pre-Christian philosophy, he does pronounce a rather harsh sentence when he writes, starkly: "The philosophy of the Greeks lacks the concept of the person." This thesis may have an authentic grounding in fact, but it is difficult to defend without residue, especially in the light of Mondolfo's richly documented discovery of "vigorous affirmations of interiority and of its living exigencies . . ." throughout classical antiquity. In a short but dense study of time ("Tempo") A. Aliotta follows the philosophical career of time through history, and reveals its progressive interiorization or spiritualization from an incipient and self-defeating attempt to redeem the temporal flow from the specious and perishable present by means of cyclical theories of eternal recurrence to the more adequate and pregnant historicization of time through Christianity.

Out of these and innumerable other fresh insights into the major problems of philosophy there emerges a grandiose vision of man's collective quest for the true, motivated, either professedly or implicitly, by the great truths of Christian revelation such as the irreducible freedom of man, the redemption of fact through value and the incorporation of nature within spirit through the historical revelation of the Unique Person.

III

The inference is by now inescapable: the *E.F.* is an indispensable tool for anyone seriously engaged in philosophical work and no student of philosophy, from novice to scholar, should fail to consult it nor any university or college library allow itself to be without it. In the happy marriage of Vico's ideal of philosophical knowledge and historical wisdom the *E.F.* finds no match in the field of published philosophical encyclopedias, and indeed supersedes them all on every major and relevant count. Yet it should not be forgotten that the *E.F.* is, after all, but a point of departure for philosophical speculation and hence that its value is instrumental rather than terminal. Its physical appearance—the actual layout and the sixty odd black and white illustrations per volume—bears witness to the excellence of Italian craftsmanship, and the whole project owes a debt of gratitude to

the enterprising sponsors of the "Istituto per la collaborazione culturale" and to the generous financial support of the Ministry of Public Instruction and of the G. Cini and E. Lossa Foundations. But this material assistance would have lain dormant without the organizational drive and ingenuity of the indefatigable Director of the *E. F.*, C. Giacon, S.J., who, in the midst of far-flung field activities, has found time to contribute two solid and comprehensive monographs, one on Aristotle and the other on Aquinas.

A few and relatively minor critical observations: it goes without saying that each major article is open to critical discussion, refinement and, possibly, modification, yet the level on which such critical work must be conducted will have to be very high, and that in itself is a contribution to philosophical scholarship of the very first order. At the end of the *E.F.* there are two useful indexes, one historical and the other theoretical, but there is no index of either articles or authors; this, we believe, is unfortunate because many an author succeeds in arousing a desire for additional contributions, and the only thing to do is to look around more or less at random, in the hope of finding an article which that author may have written. And at times no additional article turns up, as in the case of Don Sturzo, whose "Sociologia" is an admirable statement of his lifelong contribution to sociological studies; of R. Lazzarini, whose "Escatologia" leaves untapped his singular meditation on moral-theological questions (he is the author of a remarkable study of St. Bonaventure); of M. F. Sciacca, whose "Agostino" represents but a fraction of his enormous philosophical knowledge. Other philosophers, such as G. A. Wetter—one of the most perceptive students of Marxism and author of the superb *Soviet Dialectical Materialism* (in German, Italian and, just recently, English)—are represented by a handful of articles, although in this case additional examples are difficult to furnish precisely because of the absence of an author's index. This point is not unimportant, for the burden of the *E.F.* has fallen heavily on the shoulders of a few dozen prolific contributors, and their effort should be unmistakably acknowledged by means of an appropriate index. On the basis of our own reading we have noticed the frequent recurrence of such names as, among others, those of Carlini, Faggin, Guzzo, Mathieu, Mazzantini, Petruzzellis.

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Another observation is in order: although the editors disclaim any pretension to comprehensive, or, better, exhaustive coverage of contemporary philosophers, and although we are fully aware that in a work of this size, had some philosophers been included others would have had to be omitted, still we cannot help wondering why such people as Tejada Spinola, Abroteles Eleutheropoulos, Gudmundur Finnbogasan have been honored while others, such as C. G. Hempel, A. Marc, G. Sarton, H. A. Wolfson, have been omitted; a minor and perhaps caviling criticism, to be sure, but one that might be worth considering for future editions.

Finally, we too, in the tradition of professional reviewers, have uncovered some misprints (though remarkably few), but shall forego the temptation to disclose our find and record, instead, our complete agreement with the eirenic spirit of A. D. Sertillanges' advice that in reading major philosophical works we should "not resemble those proof-readers who read purely to find misprints." And it is precisely in this eirenic spirit that we should read and enjoy the *Enciclopedia Filosofica.*

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". . . by far the best book on the subject. . . . I would not think of another textbook if I were to conduct a class in natural theology . . ."*—Etienne Gilson*

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BOOK REVIEWS

POLITICAL PHILOSOPHY, HISTORY

SOCIAL AND POLITICAL THOUGHT IN BYZANTIUM FROM JUSTINIAN I TO THE LAST PALAEOLOGUS. Passages from Byzantine Writers and Documents. Translated with an Introduction and Notes by Ernest Barker. New York: Oxford University Press, 1957. Pp. xvi, 239. $4.80.

In this little book, Sir Ernest Barker, distinguished classicist and student of Western political thought, presents an anthology of the political thought of the Byzantine Empire. His materials are taken from clerical or philosophical treatises, law-codes, administrative documents, official orations, the reflections of emperors and bureaucrats. He implies that all significant passages have been included, but the harvest of these nine centuries fills only half the book; the rest consists of useful notes and introductions and of two admirable chapters on the general character of Byzantine political thought, the reasons for its limitations, and certain aspects of the Byzantine background—including cogent arguments that Byzantine civilization was Greco-Roman rather than Oriental and that the Byzantine Church was neither fully Erastian, clerically dominated, nor highly centralized.

Most of these specimens of Byzantine political thought would not deserve the stricter name of political theory. In comparison with what these same centuries produced in Western Europe, they exemplify assured and graceful assertion rather than sharp or persistent analysis. There are statements of constitutional principle; there are expositions of the moral duties of emperors; there are snippets of practical advice—often platitudinous, sometimes freshly reflecting the experience of an administrator. Certain fundamental themes recur: the emperor is the authoritative maker and changer of laws; he is, or should be, godlike in his rule; he should be the patron of culture; he has authority and responsibility in the Church, not only for its mere temporal safety but, more especially, for its doctrinal purity. Minor themes defy summary or classification: the purpose of imperial ceremony is order and beauty; friendly coexistence with the Saracens is desirable; foreign soldiers should not be given high honors; the emperor should travel widely through the Empire; he should resemble Plato's philosopher-king; "a good state is like good music"; the reason why "no great or glorious achievement" came from the ancient Greeks was their lack of political unity; etc. Underlying the whole is a system of institutions taken for granted. There seems, indeed, to have been some change of viewpoint over the centuries: early caesaropapist tendencies faded out, as did extreme expressions of the *mystique* of the deified ruler; there seems to have been a long-range trend toward a mood increasingly naturalistic, more simply human—one may say, more clearly Greek. But reflections of controversy are rare; and there is no evidence of progress in theoretical precision or systematic construction. This anthology does not support the old historians' myths of Byzantine

rigidity or of the Oriental character of Byzantine civilization; but it is clear that the political thinking here reflected was very different from that of the West; and what is missing seems to be the very center of thought itself: the struggle to define, to distinguish, to analyze, to relate—in brief, to understand.

In his opening chapter, Sir Ernest Barker convincingly attributes the deficiencies of Byzantine political thought to circumstances in the Byzantine environment that notably contrast with the Western situation: the too great richness of the Greek intellectual legacy; the dominance of a rhetorical vocabulary and style; the political structure that neither challenged nor channeled debate; the generally intimate and flexible relations between emperor and Church; the dominance of theology and comparative unimportance of law in Byzantine scholarship; the lack of an intellectual drive in Byzantine monasticism; the lack of any institution comparable to the Western university in autonomy and continuity of intellectual life; the role of the emperors as cultured patrons of culture; the limiting influence of a single capital, the single language, and, in effect, the single intellectual heritage. Urbane, intelligent, richly endowed, and capable of magnificent practical achievement, the Byzantine world is nevertheless a striking negative illustration of how much Western thought owes to the plurality of the institutional and intellectual forces whose interaction and conflicts, in the medieval centuries, stirred Western minds.

Oberlin College. EWART LEWIS.

ROMAN IMPERIAL CIVILISATION. By Harold Mattingly. New York: St. Martin's Press Inc., 1957. Pp. 312. $8.50.

A survey of the history of the Roman Empire in one volume is a task bristling with difficulties of many kinds. The principal difficulty is the extent of the empire in space and time with the consequent complexity and quantity of relevant materials in many fields. In addition, for many periods of imperial history we do not have the guidance of a first-rate ancient historian with the result that the mass of historical detail is hard to explain in a way which introduces sensible and objective unity into the narrative. These difficulties are multiplied when one goes, as does Mr. Mattingly, beyond the field of merely political or external history into the realm of the history of civilization which is perhaps more rewarding but surely more difficult.

After an introduction which measures the problems involved the author submits a brief historical sketch which is followed by chapters on the empire and its parts, cities and citizenship, the outside world, the imperial civil service, the Roman army, private and social life, economic life, religion and philosophy, literature and art. This account is well written and is designed for the general reader. It therefore avoids footnotes, detailed controversies and long technical bibliographies. However, those acquainted with Mr. Mattingly's work will realize at once that the narrative is based on a wide

and accurate grasp of the facts. More important than this, however, the attentive reader will admire the balance and fairness of the author's judgment, the independence of his mind and the candor with which he endeavors to arrive at a just appraisal of the evidence.

No one will be surprised that the author has added eight pages of plates which illustrate the imperial coinage and its relation to history. It goes without saying that the coins are admirably chosen, well illustrated and described, and that they shed considerable light on the narrative. One could wish that Mr. Mattingly had made an equal use of the imperial inscriptions which in many matters lend a precise definition in terms of people and places to general ideas and statements in a fashion very similar to the help provided by coins. But the subject is vast and books are limited in size and perhaps we should be thankful for the excellence we have rather than cry for an additional and different kind.

In the discussion of private and social life and again in the chapter on religion and philosophy the author comes on the subject of Christianity and in each case he gives evidence of the fairness and breadth of judgment which characterize his book. And he does not hesitate to point out that in this connection Gibbon failed. To praise the great achievement in civilization and government recorded in Roman imperial history and to assign to that achievement its proper place in the growth of Western civilization it is not necessary to become an enemy of Christianity.

In what can be only a brief survey of the many aspects of a vast subject it is inevitable that some will feel that this phase or that has been slighted in the account. However, it must be admitted that Mr. Mattingly has written a thorough, balanced, objective and interesting survey of Roman imperial civilization which the careful reader will find very rewarding. This reader would object a trifle to the very brief account of Roman law which it would seem could have been treated at greater length in view of its importance in Roman imperial history. Of the particular topics treated, one, I think, should be singled out for special honor, namely, the account of the imperial civil service. This is an aspect of Roman history frequently neglected and the author is quite right in stressing its importance. Mr. Mattingly has written a fine account of Roman imperial civilization which will serve both student and general reader alike.

Fordham University. CHARLES P. LOUGHRAN, S.J.

IDEAL AND PRACTICE IN PUBLIC ADMINISTRATION. By Emmette S. Redford. University, Ala.: University of Alabama Press, 1958. Pp. xii, 155. $2.50.

Professor Emmette S. Redford of the University of Texas has made the latest contribution to the excellent series on public administration published by the University of Alabama Press. The six chapters of his book, replete with accurate footnotes, were originally lectures delivered by the author in the annual series on public administration given at the University of Alabama as

part of the training program for the Alabama-Kentucky-Tennessee Fellows in Public Administration. Each of the chapters is cogently and tightly organized, with summaries and introductory connecting remarks. The last chapter is a very good summation of all that has preceded, with a clear statement of the author's belief that public administration today is a most important means "through which the public interest is partially attained" (p. 150). The style of the book is lively and it contains much factual information.

Dr. Redford limits his discussion of ideals in public administration to five which he thinks are commonly found in the literature of the field: "efficiency, the rule of law, competence and responsibility, democracy, and the public interest" (pp. xi-xiii). These are fundamental to our tradition and as such permeate the work of administration which is the "practice" of these ideals in government.

Efficiency is defined as "input-output or resources-results relationship" (p. 5). The ideal of efficiency in administration was advanced by the early reform groups like the National Municipal League (1894) and urged by such governmental studies as those of the Taft Economy and Efficiency Commission (1912-13) and the Illinois Efficiency and Economy Commission of 1915. Of great utility in the area of repetitive and quantitative processes, efficiency has become a widely realized ideal, particularly in financial management. Of more value to managers than policy makers, it does not offer much help in making value judgments.

The rule of law offers more guidance in the area of value judgments, since it prescribes a rule of reason which implies the rationality and integrity of the individual. Granting that the rule of law actually becomes the rule of institutions (the legislature and the courts) interpreted by men (the administrators and the judges), it is an operable ideal that has, in practice, curbed the discretion of administrators enough to prevent undue arbitrariness without making precedent and procedure ends in themselves.

Professor Redford regards competency as measured by technical and professional standards a mark of responsible and skilled administrators, who, as professionals, are the executors of democracy. The ideal of competent and responsible men in public service has become the practice to the extent that people "have become accustomed to expecting an 'informed judgment' from administrative agencies" (p. 58). Hindrances to the recruitment and retention of trained men for public service have been (according to the author) low pay, lack of imaginative political leadership, the public attitude toward bureaucrats, and the loyalty-security program. Internal obstacles are inertness, separation, and specialization. Professor Redford believes that a greater flexibility in the public service would contribute to a greater actualization of the ideal of competency.

Administrative agencies are primarily controlled by the elected officials of government, and of these, the president, "it may be concluded, is the 'centerpiece' in democratic control of the bureaucracy" (p. 104). The author's

discussion of the role of the President and the Congress as the people's representative is excellent. The president's control is exercised through his power over personnel and his position as the political leader and chief administrator at the head of an integrated structure, whereas the powers of Congress are weakened by the sectionalism of that body and the inability of its members (due to the multiplicity of their duties) to respond adequately to the technicality and complexity of administrative problems.

The final chapter is an equally good discussion of the role of public interest in public administration, what it is, how it is produced, and the means through which it takes its effect. The author believes the public interest is determinable within limits and that it does influence administrators as an ideal.

The one flaw in this admirable little book is that it tries to do too much in too little space. Admirable as lectures, perhaps some of the chapters could have been expanded so that the supporting points could be more fully developed. However, Professor Redford makes a very good case for "organization and process as vehicles of rationality and common purpose" (p. 150), as means whereby our ideals are concretized, albeit imperfectly, through public administration.

Marquette University. JAMES R. BROWN.

THE REPUBLICAN ERA. 1869-1901. A Study in Administrative History. By Leonard D. White. New York: The Macmillan Company, 1958. Pp. ix, 406. $6.00.

All of Professor Leonard D. White's work—as teacher, scholar, author, and public servant—attests his invaluable contribution to the understanding and improvement of American government. His last book, *The Republican Era, 1869-1901,* is yet another reminder of his eminence in this field, and of how great was the loss when he died early this year.

The Republican Era is the fourth volume in Professor White's monumental administrative history of the Federal Government. The first, *The Federalists,* covered the administration of Washington and Adams; the second, *The Jeffersonians,* brought the story down to the end of 1828; the third, *The Jacksonians,* carried it through Johnson's administration. The present volume deals with the remainder of the nineteenth century, ending with the death of McKinley. Like the others in the series, it is an important and useful book, for it explores thoroughly areas of American political history generally glossed over by political scientists and historians alike, illuminating the larger events of the period with a bright and penetrating light. Like the others, it is an extraordinarily scholarly book—Professor White sifted simply astounding numbers of biographies, letters, memoirs, diaries, histories, monographs, government reports, hearings, and periodicals to compile this study of administration—but it is not at all pedantic. Like the others, it is an immensely readable book—well organized, stylistically polished, fast-moving, rich with

the sense of drama of efforts to adjust governmental machinery to the needs of a rapidly expanding and industrializing country—but it neither oversimplifies nor strives for sensationalism. Like the others, it is a wise book—full of insights, judicious, sensitive to the currents of politics and administration. *The Republican Era* is both a pleasure and a profit to read.

"During the thirty years from Grant to McKinley," says Professor White, "two great controversies dominated the administrative scene. One involved the rejuvenation of executive power and leadership after the impeachment of President Andrew Johnson and the surrender of President Ulysses S. Grant to the Senate. The second was concerned with the bitter struggle for civil service reform, a battle that had an important if indirect bearing on the fortunes of executive power, on the nature of political parties, and on the standards of public morality." It is on these controversies that the book concentrates.

The successors to Grant fought to restore the power of the Presidency to regain for the office the authority that had passed to an oligarchy in the Senate. And they did win some important battles—over appointments and removals, for example, over the use of the veto power, and, under McKinley, over policy leadership. But Congressional committees retained detailed control of appropriations and administration. The Presidents played no part in budgeting, and they lacked the staff to intervene in the administrative process. Such efforts at reorganization as were made in the interests of efficiency and economy were initiated and conducted by Congress. Even the Secretaries of the Departments were relatively helpless; in a survey of the Departments—Treasury, War, Navy, Interior, Agriculture, and the Post Office—Professor White discovers the same pattern almost everywhere: Individual bureaus dealing directly with the committees and subcommittees of the legislatures, utterly uncoordinated, virtually autonomous, and jealous of their independence. (It was the staff bureaus of the Army, for instance—the Adjutant General, Quartermaster, Medical, Pay, Engineers, Signal, and others—that fought the creation of a general staff because they feared it would curtail their autonomy.) "Presidents took the administrative system as it had developed by law, by departmental regulation, and by custom. They were at the head of the machine, but the machine had power of self-propulsion and power to preserve its own shape and motion."

Partly because the early part of this period was marked by "deplorable levels of public and business morality," and partly because of the lack of executive leadership, the government was ridden by fraud and corruption that erupted in shocking scandals. At the same time, the responsibilities of the Federal Government were growing rapidly as the country expanded and industrialized; administrative methods of an earlier day were rendered obsolete and inefficient, so that even honest and selfless administrators would have been hard put to carry the increasing burden. These conditions lent impetus to demands for civil service reform that had become ever more

clamorous since Civil War days, eventually led in 1871 to Presidential authority to reform the civil service, and culminated in 1883 in the Civil Service Act. The new Civil Service Commission had to fight hard for survival, but it was firmly established by the end of the century. Its accomplishments, to be sure, were still quite modest, yet it had by this time demonstrated it was to play a major role in "the formation of a government-wide establishment in lieu of a loose collection of mutually independent departments and agencies," and as a symbol of the President's eventual leadership of the administrative system.

During these thirty years, then, administrative structure and practice in the Federal Government did not undergo radical transformation. But the groundwork was laid for sweeping changes that were to take place in the next three decades; by 1930, says Professor White, things had changed drastically. And the New Deal, World War II, atomic energy, and the cold war were still to come. The tendencies discernible between 1869 and 1901 were ultimately fulfilled. Students of American government will long remain in Professor White's debt for assembling so much of the record so brilliantly. And they can only be grateful if whoever undertakes to bring the story up to date—a sorely needed enterprise—does the job even half so well.

Yale University. HERBERT KAUFMAN.

DILEMMAS OF POLITICS. By Hans J. Morgenthau. Chicago: The University of Chicago Press, 1958. Pp. x, 390. $7.50.

In his essay on E. H. Carr Professor Morgenthau writes: ". . . the over-all impression of Mr. Carr's work is one of failure. . . . The fundamental reason is philosophic. Mr. Carr sets out to discover a new morality in the political world without a clear notion of what morality is." With minor qualifications the same point can be made concerning the author's own contribution to political thought. Some of the purely diagnostic essays in this volume are interesting additions to contemporary political literature; among them Morgenthau's clear and trenchant analysis of Lasswell's arid intellectualism deserves particular attention. It is certainly correct to say that political science, if it is to become meaningful and productive again, has to free itself from the scientistic method to which Tillich in another connection referred as "the pressure of a methodological imperialism."

However, over and beyond the clinical character of some of these studies the reader finds himself confronted with concepts which can hardly serve as keys for the realist theory of politics which Morgenthau claims to advocate. This review will shortly deal with two of these concepts: interest defined as power and political morality. For the author the former is "the central focus" for a general theory of politics. He has warned us on previous occasions that such a realist theory "will guard against two popular fallacies: the concern with motives and the concern with ideological preference." If we are to develop a realist theory for which Professor Morgenthau so eloquently pleads—and of which we are in dire need—the question arises: interest defined as

power—for what? The author's key concept, interest defined as power, deals essentially with means and refers to the end, "the concern with motives," as a "popular fallacy." Plato, besides others, thought differently; to him "the knowledge of the nature and habits of men" were essential to statesmanship and, therefore, to a realist theory of politics. The key concept in such a theory can only be that of political order. The establishment of political order is the end of politics and, therefore, the source of political motives. To center a theory on what essentially amounts to means, as Morgenthau does, leads to a fragmentary approach which does not assist in understanding but rather in distorting historical reality. Father Grundlach, S.J., has recently pointed out again that power is indeed an important element in society—however, an element which shows positive, i.e., rational results only if subjected to order. And order, as already stated, points to political ends and political motives.

This leads to Morgenthau's difficulties with the concept of morality. Once he eliminates political motives from the purview of his theory, what is going to be the yardstick by which means are to be judged? His lip service to universal moral principles assigns to them a place in a conceptual heaven and reserves almost exclusive rights on the stage of human affairs to "political morality." This, as contrasted with individual morality, Morgenthau contends, cannot be separated from prudence. However, accepting for the moment his dual standard, neither can individual morality: *omnis virtus moralis debet esse prudens.* Prudence, besides synderesis, links the demands of the indivisible moral universe to the human decision made under the pressure of contingent factors (cf. Rommen, Messner, Dabin). To separate prudence from the latter is bound to lead to purely formal ethical generalizations; to separate it from the moral universe leads to expediency presenting itself at different times in different ways, e.g., as political morality. What we end up with, if we follow the author's reasoning, is a new version of the old dual standard of morality. And if we attempt to trace this misconception in Morgenthau's thinking we find it clearly stated in his introduction to Lefever's *Ethics and United States Foreign Policy;* there he says: ". . . man's aspiration for power over other men, which is of the very essence of politics, implies the denial of what is *the very core* of Judaeo-Christian morality—respect for man as an end in himself" (italics supplied). Is not this rather the core of the morality of liberal humanitarianism? It is this, however unconscious, acceptance of various old versions of a necessary antinomy between politics and morality as a framework for his theory which points up the fundamental shortcomings of the author's work.

The Catholic University of America. WILLIAM H. ROBERTS.

JUSTICE REED AND THE FIRST AMENDMENT. The Religion Clauses. By F. William O'Brien, S.J. Washington, D. C.: Georgetown University Press, 1958. Pp. vii, 264. $5.00.

The correct attitude of the biographer in the face of his subject finds classic

expression in the words of Othello: "Paint me as I am. Nothing extenuate nor aught set down in malice." In the opinion of this reviewer, Father O'Brien, Professor of Political Science at Georgetown University, makes the above maxim his guiding star. He turns the spotlight full focus on the philosophy of Justice Stanley F. Reed as that justice evaluates the Religion Clauses of the First Amendment from 1938 to 1957. The increasing demand for a scholarly and lucid monograph on the Religion Clauses of our First Amendment receives an adequate response in the book under review.

When a majority of the court, in the famous Everson and McCollum cases, reached the unwarranted conclusion that "Neither the state nor the federal government can pass laws which aid . . . all religions," Reed was justifiably horrified. He knew from a careful study of history that James Madison, the principal promoter of the Amendment, did not mean to inhibit Congress from encouraging religion. Apropos of the above, Father O'Brien, in one of his many refreshing and perceptive insights, remarks: "It is curious that in the McCollum Case no other member of the Court (except Reed) made a single reference to the debates of the First Congress or to contemporary writings in order to discover what meaning was given to the amendment by its drafters and by the state legislatures that ratified it."

A careful reading of this study reveals that all too many of our modern Justices are reaching conclusions based on the dangerous philosophy expressed by Charles P. Curtis. Commenting on the McCollum decision, Curtis wrote in the Vanderbilt Law Review (4,427-445,1951): "the Court reached a decision which I heartily approve, without, so far as I can see, any justification whatever in what the Constitution says, and even less in what those who wrote it intended it to mean." One can only hope that Father O'Brien's documentary approach will shock the extreme liberals into a study of the historical background of the First Amendment. The author's proof of James Madison's support of Jefferson's "released time" program at the University of Virginia is particularly pertinent. The same Jefferson who sponsored "released time," and who therefore would be opposed in principle to the decisions in the Everson and McCollum cases, secretly harbored an intense antipathy to the Catholic Church. In a letter to John Adams on May 29, 1823, Jefferson wrote: "were the Pope . . . to send in mission to us some thousands of Jesuit priests . . . I suspect that we should deem and treat it as a national aggression on our peace and faith." The fact that Jefferson, in spite of these hostile feelings, came out for government aid to religion should make an appeal to the Eversons and McCollums.

Father O'Brien portrays Reed as a Conservative in the tradition of our founding fathers. Although it is true that this conservatism is immediately highlighted because of the liberal background of the Court, yet it would be unfair to Reed to attempt to apply to him the proverb: "In the kingdom of the blind, the one-eyed man is king." As Father O'Brien details the manner in which Reed arrived at his decisions it becomes apparent that his conserva-

tive approach would have been a stand-out in any Court. The author concludes, on the basis of sound historical scholarship, that Justice Reed's "opinions and voting habits have advanced, rather than retarded, the cause of genuine liberty." He further concludes that Reed was ruled "by a spirit of judicial restraint," and was a staunch upholder of the legitimate authority of the states. The Constitution lost an able defender when Justice Reed stepped down from the bench in 1957. When better courses in Constitutional Law are given, this book will be required reading.

Le Moyne College. HERBERT J. CLANCY, S.J.

AMERICA'S ADVOCATE: ROBERT H. JACKSON. By Eugene C. Gerhart. New York: The Bobbs-Merrill Co., 1958. Pp. xiii, 545. $7.50.

"Only as you strike out on paths that lead a more solitary way will you come upon the delights of life." These were the words of Robert H. Jackson speaking to a high school graduating class in Dunkirk, New York, in June, 1930. And it was advice that came naturally to a man of Jackson's background. Born and raised in rural New York, he was admitted to the bar after a two-year clerkship in a small-town law office. He began his career as a country lawyer, representing clients in all walks of life and in every sort of difficulty. As Jackson himself realized, he was one of the last of his breed, the county seat lawyer and small-town advocate who was rapidly vanishing from the front ranks of the legal profession. "More and more," Jackson said, "those who in court and classroom and legislative body restate our legal principles are men who have not experienced the country life of which our law was so largely the expression." Or in more pungent language, "there isn't a whiff of the stable in a carload of college freshmen."

This impression of Jackson as a man who set great store by his independence comes through very clearly in the pages of this stimulating biography by Eugene Gerhart. And yet Jackson's own life provides something of a commentary on the limits of individualism in modern society. For three years after warning high school seniors not to give all their energies to the work of organizations and committees, he himself began a career as a government official in Washington. And his tenure of office encompassed service in organizations such as the Treasury and Justice departments and culminated in an appointment to one of the most influential committees in the land, the Supreme Court of the United States.

Ironic also is the fact that Jackson was to play a leading role in the reforms of the New Deal which led, for all their merits, to a great expansion in the scope of both public and private bureaucracy. For as Mr. Gerhart's account clearly brings out, Jackson was by no means a reluctant Democrat dragged behind the New Deal by the tie of party loyalty. He was in fact a leading advocate of social reform in the 1930's. To be sure, he was enough of a traditional liberal to put his faith initially in breaking up the monopolies and whittling American enterprise down to a size where big government

would be unnecessary. But at no time did he recoil from the prospect of large-scale government enterprise or regulation.

Like a great many biographers, Mr. Gerhart has a tendency to look upon his subject with all the indulgence of a fond parent. Consequently, Jackson would have little reason to feel aggrieved by any of the judgments entered here on his life and work. With regard to the feuds that became almost a Jacksonian signature during his governmental service, Mr. Gerhart holds consistently to the view that Jackson emerged unscathed. Perhaps so, but it is hard to believe that the silent treatment with which Justice Black met Jackson's somewhat startling outburst in 1946 was altogether ineffective.

Mr. Gerhart focuses a great deal of attention upon the Nuremberg trials, for he, along with Jackson, regarded this judicial meeting at the summit as the high point in the life of the Justice. Whether history will join in this judgment remains to be seen. At the moment at least, Jackson's participation in the Nuremberg proceeding has an air of bizarre unreality about it.

If there is a key to Jackson's character to be found in this biography, it lies perhaps in Gerhart's clear indication that the part of the law that had the earliest and deepest appeal for Jackson was the combat it involved. For Jackson the law was not, as it is for some, the quiet eye of a turbulent society, but a set of rules under which to do battle. As Jackson himself put the matter late in life, "I just liked a good fight."Herein perhaps lies some explanation for the stormy episodes that punctuated his passage through government service.

Johns Hopkins University. FRANCIS E. ROURKE.

PHILOSOPHY, SOCIOLOGY

SHAFTESBURY AND THE FRENCH DEISTS. By Dorothy B. Schlegel. Chapel Hill: University of North Carolina Press, 1956. Pp. 143. $4.75.

Mrs. Schlegel has chosen one of the trickiest subjects in the history of eighteenth-century ideas. It would have already been a daring enterprise to trace the impact of Shaftesbury's ideas upon Voltaire, but Mrs. Schlegel with admirable intrepidity has attempted a study embracing the English moralist's influence on Voltaire, Diderot, Holbach and Rousseau, thus quadrupling her difficulties. In the first place, we are not quite sure that the title *French Deists* fits consistently Voltaire and Rousseau on the one hand and Diderot and Holbach on the other. It would be more reasonable to expect the author to treat such contemporaries as Mirabaud, Dumarsais, Boulainvilliers, Fréret, and the pseudo-St. Evremont. Or, if she insists upon making a choice among French Deists, she might be expected to distinguish between the influence of the English Deists as distinct from another French influence exercised by the aforementioned group. Or, to mention a major difficulty, if Mrs. Schlegel intended to show the influence of Shaftesbury upon

the four great French writers, she would have done well to distinguish between this influence and Pope's and Bolingbroke's.

Mrs. Schlegel has not chosen to make these distinctions between English and French Deists and between the deism of Shaftesbury and that of other English writers, although she does often refer to Shaftesburyian deism as if it were a particular brand. None the less, her little syntheses are not without interest: what she terms Voltaire's dilemma, Voltaire's propaganda, Diderot's bankruptcy of virtue, Holbach's rout of the deists or Rousseau's bankruptcy of reason, has importance, though perhaps she has exaggerated it. Moreover, any suggestion that these currents in the history of eighteenth-century ideas were ultimately produced by Shaftesbury is gross exaggeration.

Shaftesbury was, however, not without influence. It is true, for instance, that Voltaire had a way of including him with Pope and Bolingbroke when he referred to them as originators of Optimism. It is also true that Voltaire mentions him in the *Lettres sur Rabelais* and attributes to him gratuitously some remarks in the *Bible enfin expliquée*. It is quite another thing to conclude therefrom that Voltaire was converted to Optimism by Shaftesbury or that he adopted his theories of benevolence, or that in his struggle between deism and materialism, it was Shaftesbury who swung him eventually to deism; it is also exaggeration to state that Voltaire's views on morality, particularly his treatment of *amour-propre* and natural social instincts are drawn from Shaftesbury when they could have come more naturally from the Abbé de St. Pierre (whom Voltaire praised precisely for inventing the term *bienfaisance*) or better still from Mandeville whom Mme. de Châtelet was translating and whom Voltaire adopted in the *Traité de métaphysique*, the *Mondain* and later in the *Ingénu*.

If it is difficult to be precise in treating Shaftesbury's influence on Voltaire, it is almost impossible to be specific in tracing his influence on Diderot, despite the fact that Diderot translated in his way the *Essay on Merit and Virtue*. Mrs. Schlegel does little to clarify the picture when she asserts that Diderot's thinking was ever struggling in the direction of materialism and realism away from Shaftesburyian deism, Platonic absolutism and enthusiasm. She attempts to demonstrate that Diderot's views on the evolution of species, the survival of the fittest, and the adaptation of organisms to their environment are derived from Shaftesbury. But we have no proof of this either in similarity of expression, sequence of ideas or even ultimate similarity of ideas. For, in each case, the idea is neither similar in expression, nor in interpretation, nor is it put to the same use by the two writers. Hence, Mrs. Schlegel is reduced to such statements as "possibly," "must have," "perhaps." About all we can conclude from this demonstration is that Diderot and Shaftesbury sometimes talked about the same things: evolution, thinking matter, and the rise and fall of civilizations.

This is shown very well by Mrs. Schlegel in her chapter entitled "The Bankruptcy of Virtue." Here the subject under discussion was central to

both Shaftesbury and Diderot. Moreover, the latter had begun his literary career with an adaptation of Shaftesbury's essay, and remained, as he confessed more than once, committed to the problem of morality. But the analysis of Diderot's moral views shows that he rejects Shaftesbury's moral philosophy point after point. Mrs. Schlegel concludes that Shaftesbury's influence had disappeared entirely by the time *Jacques le Fataliste* appeared, and this is partly true. But she also concludes that Diderot arrived by his process of elimination at the bankruptcy of virtue and this is certainly not true. A closer acquaintance with Hermand's work would have made this clear. Diderot, like the other philosophes, had trouble explaining the theory of natural law and the powers of enlightenment for moral man, but what has been called his surrender to immorality is, on the contrary, a very vital form of morality.

Mrs. Schlegel's task becomes increasingly difficult when she undertakes to show Shaftesbury's influence on Holbach. A sentence on page 79 gives the case completely away: "Although d'Holbach never actually mentions Shaftesbury by name in the text itself of the *Système de la nature*, his ethics, polemics, biblical criticism, and at some points, paradoxically enough, his cosmology, are much like that of the Englishman, with, however, one significant and all-important difference—the various phases of his thought depend on a different premise." With this statement there can be no quarrel, although it justifies the removal of Holbach from the thesis. For Holbach is in Mrs. Schlegel's opinion (p. 80), an "outright" atheist. Any relation between him and the deists must be presumably coincidental. But it is not so simple as that. Holbach published volume after volume of French and English Deistic writings. Probably no man published more, except Voltaire, unless, indeed, Holbach has received undue credit for one of Voltaire's very important clandestine activities. Be that as it may, Holbach rejected every deistic position after apparently using every deistic argument. How can one explain this peculiar fact? Simply because in French Deism as opposed to English Deism there is already a tendency to atheism. What Mrs. Schlegel attributes to Shaftesbury is clearly a Meslier influence.

The most difficult task is to show Shaftesbury's influence on Rousseau, since seemingly the citizen of Geneva never mentioned the name of Shaftesbury in his works. Mrs. Schlegel assumes that Diderot, Montesquieu, Voltaire and Prévost served as intermediaries between the English and the Genevan moralist. This assumption is unsubstantiated, however, since we have no evidence that Shaftesbury had any particular influence upon Montesquieu, Prévost, and Voltaire. It is certain that Rousseau utilized both the *Examen de la religion* and the *Lettre de Thrasibule à Leucippe*, two of the clandestine French deistic works, but not one single deistic idea of his can be traced to the English philosopher. It is plausible that the Genevan knew the *Essay on Merit and Virtue* through Diderot's adaptation and that he had access to Diderot's ideas on morality since the latter was developing them from 1745

to 1758. But these ideas, as we have just seen, owed but little to the Englishman.

Thus Mrs. Schlegel has failed in her primary purpose of showing the influence of Shaftesbury upon Voltaire, Diderot, Holbach and Rousseau. She has, however, brought up an interesting problem of method. In studying the influence of ideas is it preferable to make an analysis of texts for similarity of sequence in ideas, similarity of logical conclusions, similarity of expression? Or is influence best demonstrated by fitting a writer's ideas into the current of thought of his time? It is because Mrs. Schlegel did not solve this problem to her own satisfaction at the outset that she did not achieve her primary purpose. On the other hand, it would be very unjust to leave the impression that her work is not useful. As an analysis of the development of ideas in her four French authors, it is very good indeed.

Princeton University. IRA WADE.

AMERICAN CATHOLIC DILEMMA. By Thomas F. O'Dea. New York: Sheed and Ward, 1958. Pp. xv, 173. $3.00.

With this sociological inquiry into American Catholic intellectual life Professor O'Dea has advanced the discussion and suggested directions it should take in the future. His inquiry is not to establish the fact or the degree of Catholic failure in American intellectual life. This he assumes. He is interested rather in attempting to find some of the causes of this failure.

Professor O'Dea retraces considerable ground covered in the last decade by scholars interested in the plight of the intellectual, showing that he is somewhat suspect in America, and that in Catholic circles there is always a certain tension between the claims of faith and those of reason. But he retraces this ground as a sociologist to offer such suggestions as the one that there is "a subtle division of the American Catholic mind" between "simultaneous incorporation into and alienation from American culture."

The basic thesis of the book can be stated thus: The Church has never been openly hostile to intellectual life; indeed it has usually encouraged and sponsored intellectual activity. Nevertheless, there are in the Catholic heritage latent factors of hostility to the intellectual life, and these come to exaggerated form in America. The evidence produced to support this thesis contains nothing historians of culture have not known, but O'Dea's methodology suggests a number of areas for empirical investigation into the problem. This is perhaps the greatest value of his contribution. Another valuable contribution is the suggestion that certain "causes" alleged to account for Catholic backwardness in American intellectual life are insufficient to account for the state of affairs. Intolerance and economic hardship, for example, have not had the same effect on American Jewry. Other factors in the American tradition must therefore be found to account for this different reaction on the part of the Catholic minority in America.

There is nothing startling or new in Professor O'Dea's conclusion that the

basic characteristics of the American Catholic milieu inhibiting the development of mature intellectual life are: formalism, authoritarianism, clericalism, moralism, and defensiveness. These are well known by persons in intellectual life, though not readily admitted by some pastors, successful laymen, and others guilty of endorsing these characteristics.

This is a good book for summing up the sociological and psychological causes of Catholic shortcomings in American intellectual life (which, let us remember, many Catholics do not concede). The principal defect of this book is the sociological jargon in which it is cast. Professor O'Dea writes more straightforward English than most of his colleagues, but he does not entirely escape the cant of the trade.

St. Louis University. THOMAS P. NEILL.

CATHOLIC VIEWPOINT ON CENSORSHIP. By Harold C. Gardiner, S.J. Garden City, N.Y.: Hanover House, 1958. Pp. 192. $2.95.

This book by the literary editor of *America* surpasses the standard set by his *Norms for the Novel.* Restricted to the cultural field, it covers only two areas, the film and such printed material as pocket books and magazines. For these are the spheres in which the Legion of Decency and the National Office for Decent Literature (NODL) are accused of exercising censorship. The aims and operations of these two organizations, both established by the American Catholic episcopate, are minutely described.

But first the author presents the consistent philosophy of freedom and proper coercion which the Church follows, along with its positive legislation prescribing prior censorship of Catholic religious books and the classification of works dangerous to faith and morals. Reason and experience show, according to Father Gardiner, that men are meant to live together in society, that the institution of authority is indispensable, if they are to achieve their individual and common goals. Such an authority should possess coercive power, and the proper response of the citizen should be not merely obedience, but love for the principle of authority. Such coercion, while limiting free will, also is expansive in its educative quality, bringing men to love the good, thus bringing them to greater freedom. While it must be admitted that not all those who are duly punished or restricted by coercive measures come to love authority, still those at least who are of good will, such as the affiliates of the American Civil Liberties Union, should accept this function of coercion with dispassion.

Unfortunately, says the author, quoting from many of their releases, they seem rather, in their zeal to remove censorship of all types, to be against all coercion in principle, and against all law and authority. Yet they should be the first to approve of the Catholic view that human progress necessarily implies the correlative ideas of measure and restraint, internally in a man's own conscience and motives, and externally through the operation of law and social forces which are not formally legal. Instead, the very proponents of

civil rights are in reality denying that there is any objective order, any moral ought, and thus removing the very basis of rights.

This philosophy of law and freedom, based on Yves Simon, Jacques Maritain, and St. Thomas, is impressively summarized in three chapters. One unfortunate defect, however, is the author's failure to distinguish explicitly "society" from "State," even though this is implied later on (p. 147) in the use of the principle of subsidiarity. His discussion of coercion by "society" reveals some confusion in a very important area: Catholics are being accused of using non-public Catholic social agencies to pressure the whole population merely because they do not think it possible to wait on the slow-moving political arm when public morals are seriously threatened. The position of their opponents has been to insist on positive legal and juridical steps and nothing else, until, however, they came to see the danger of State intervention in cultural matters, at which point they then demanded absolute freedom with no censorship at all by anyone. Unless we clearly demarcate "society" and "State" we have no alternatives but State domination or utter individualism. Father Gardiner sees this, but does not give it due expression.

After a survey of the spirit and intention of the Church in its Canon Law and in its moral theology regarding literature, there follow two valuable complementary chapters on the meaning of the term "obscene." And a comparison of the opinions of the U.S. Supreme Court and of Catholic moral theologians displays an unexpected similarity of outlook and principle.

In refutation of the common objection that the formation of opinion for a limited group tends to exert undesirable—and un-American—pressures on outsiders, Father Gardiner maintains that (1) the Catholic censorship organizations live up to the spirit of Canon Law and so represent a Catholic viewpoint, although it may not necessarily be the only Catholic viewpoint; (2) they work within the framework of fundamental freedoms guaranteed by our American Constitution; (3) they can do more than just criticize, by joining forces with the vigorously anticensorship elements with a view to cooperation in drafting legislation, exercising persuasion on producers, publishers and distributors, educating the public in good taste, and so on.

To the important question, Does the Church practice censorship, especially "prior" censorship, through these organizations?, Father Gardiner gives a reply typical of his scholarship and honesty: Though the legal climate in our country is not favorable to it, "prior" censorship is not unconstitutional. Although the Legion of Decency would exercise such advance censorship if it could prevent objectionable films from getting to the Catholic public, for which the Church is responsible, in point of fact the Legion can never do so since it reviews films only after they have been produced and are "in the pipeline" to the general public. Of course the Legion may be asked for advice about a script before production, but this is not censorship.

We need more books like this by men who are personally involved in the conflicts between the Church and her well-meaning critics. Father Gardiner's

understanding of critical positions, his urbanity of tone and his scholarly use of sources offer the only way to peaceable cooperation in a pluralistic society in which one group, the Church, still defends religious and moral absolutes.

Fordham University. FRANCIS V. COURNEEN, S.J.

LITERATURE, EDUCATION

DICKENS AT WORK. By John Butt and Kathleen Tillotson. Fair Lawn, N. J.: Essential Books, 1958. Pp. 238. $6.25.

"The first chapter [of *Nicholas Nickleby*] is ready . . . so you can begin to print as soon as you like. The sooner you begin, the faster I shall get on," wrote Dickens, who, to make matters yet more pressing, was still engaged with the final installments of *Oliver Twist!* The dangers of such mad races with dates, indeed of periodical publication itself, to craftsmanlike work Dickens himself saw, apparently, no less clearly than his critics. Nevertheless, his income more dependable with the constant flow of the product, his nature thriving from being constantly before the public, he continued employing for novels the method that had given him his first success. *Sketches by Boz,* however, was merely a collection of newspaper articles issued in monthly parts, a far cry from even the rudest novel. Two questions arise: How did the contents of the green jackets develop from twenty accumulations into twenty more or less unified parts of a novel? How could a good novel have been composed in installments, the first of which were written and published sometimes over a year before the last ever saw paper?

Mr. Butt and Mrs. Tillotson have answered the first question well in a careful account of the beginnings of *Sketches* followed by a study of *Pickwick.* If the more important second problem has not been answered fully, the authors have at least shown conclusively that what they have termed "hand to mouth writing" is not necessarily hand to mouth creation.

Concerning the better novels, there can be little doubt from internal evidence alone that Dickens had some kind of "Master Plan" (probably not written down, say the authors) which determined in a general way the course each monthly number was to take. The authors do not depend only on the the text, however, to prove "the strength of his mastery over his first design" of *Dombey and Son.* They use letters, the cover design, the manuscript and number plans, the proof sheets, even the title of the novel (not nearly so noncommittal as the preceding titles). But if all this proves that Dickens sustained faithfully the planned tenor of the novel, it proves too that he began *Dombey* before he had yet projected concrete matters even of such major importance as the emphasis to be given to particular characters and their corollary settings. In the early numbers of the next novel, however, he laid the ground quite carefully for the future; for *David Copperfield* he had quite firmly in

mind later scenes and the weighting of the major characters. Although the method encouraged deflection (Miss Mowcher was changed to avoid a lawsuit), later on he put even this readily changeable articulation to account, as the authors show in a fine chapter on "The Topicality of *Bleak House*."

For the fascinating chapter on *David Copperfield* the authors have given facsimiles of the number plans for the entire novel. Since we do not know whether many of the notes in the number plans were written before or after the writing of the number, a few of the plans are not very informative, but the total effect given is unmistakable, that of a guiding genius able to carry a single story to fitting completion over twenty hurdles without retracing the field to right the fallen ones.

Mr. C. P. Snow has said that the next step in Dickens studies after this book is a word-by-word critical appraisal. Mr. Butt and Mrs. Tillotson, while their text does not encourage such hope, seem to hint the same in their preface: "Dickens studies have hardly passed beyond the early nineteenth-century phase of Shakespeare studies." Such claims are based on the mistaken assumption that studies of Dickens have as far to go as studies of Shakespeare. By all means let us have a correct text; but why a word-for-word appraisal? It should not lessen our profit from Dickens and our admiration of his "naked flame of mere natural genius" (and *Dickens at Work* gives us a deeper understanding of Chesterton's words) to have to admit that more respect for the piece at hand and less compulsion to give a shilling's worth of words to the crowd would have made his books better books; or to have to maintain that his genius is no less genius because it sprang from seeds journalistic rather than poetic.

Serious readers of the Victorian novel will want this book, even though they may already be familiar with some of its previously published material.

Canisius College. CHARLES J. MCCANN.

AMERICAN LITERATURE AND CHRISTIAN DOCTRINE. By Randall Stewart. Baton Rouge: Louisiana State University Press, 1958. Pp. xiii, 155. $3.50.

Mr. Stewart's argument is that from the point of view of the Christian doctrine there are three heretical schools in American literature—the rationalist, the romantic, and the naturalistic—and two, besides Puritanism, which are orthodox—the "counter-romantics" (Hawthorne, Melville, and James) and certain modern writers. Considering the difficulty of finding a standard both narrow enough to be Christian in any proper sense and wide enough to embrace the variations of Christian doctrine in America, Mr. Stewart has done well in defining Christian doctrine, but in applying it as a test of orthodoxy in individual writers he has turned up nothing not already obvious and has rendered his conception of it largely meaningless.

Mr. Stewart lists five fundamentals of Christian doctrine: the sovereignty of God, the divinity of Christ, original sin, the atonement, and the inspiration of the Scriptures. In view of these he is right in calling Emerson "the

arch-heretic of American literature" and the Emersonian tradition a progress from Christianity to infidelity. But is he equally right in accepting as an adherence to Christian doctrine the reduction of Christian mystery, as in Hawthorne, to mere literary symbolism? This reduction is also a progress from Christian doctrine, and it is more proper to say that in Hawthorne and Melville we find not Christian doctrine, properly speaking, but its remnants. Again, granted that James is a moralist, in what proper sense is his morality Christian, and how does it differ from Emerson's? In its pessimism, says Mr. Stewart. But though moral pessimism is more compatible with Christianity than moral optimism, it is not Christian simply by virtue of being pessimistic. In short, though Mr. Stewart clearly defines his norm, by accepting a mere analogue of Christian doctrine he pretty much suspends it.

To take another example, Mr. Stewart suggests, as a token of the difference between the naturalistic and the Christian views of man, a comparison between Studs Lonigan and Huckleberry Finn. Now Huckleberry Finn's experience demonstrates the possibility of moral choice, but it also justifies the romantic reliance on the natural self, since Huck finds society and tradition corrupt, and his natural instincts a guide to right conduct.

Similarly, to consider Hemingway a Christian writer because of his "ritualistic" morality and "consciousness of God," as Mr. Stewart does, is to broaden the conception of Christian doctrine to include a view of life more justly termed pagan. And though Mr. Stewart calls Faulkner "one of the most profoundly Christian writers of our time," we wonder how Faulkner's "fondness for the Christ-symbol" differs, in its expropriation of Christian mystery, from Emerson's divinization of man? It differs, perhaps, in that it is a groping toward faith, whereas Emerson's is a rejection of faith. But Mr. Stewart is studying American literature and Christian Doctrine and not, say, American literature and the religious spirit.

One final point. Mr. Stewart takes "the absence of tragedy in the high sense" as a common result of romanticism and naturalism, and implies that the tragedy in Hawthorne, Melville, and Faulkner is related to their Christianity. But tragedy flourishes in ages whose faith, from the Christian point of view, is defective. The great ages of tragedy have been the Greek and the Elizabethan—the first a time of mythical religion, the second of religious uncertainty. And myth and uncertainty are the marks of Hawthorne, Melville, and Faulkner; the tragedy in their works is, if anything, a sign of their estrangement from Christian orthodoxy.

Does it follow then that American literature is not Christian? I think it does—at least in the sense in which Mr. Stewart has defined Christian doctrine. From the settlement of the colonies on down, there has been a progressive emptying of the content of Christian belief in America. Some writers have contributed to the emptying, some have been products of it; some serve Christianity despite themselves, and some might be regarded as groping obscurely toward it; and if there is a spirit of unbelief, there is also a spirit

of belief. But no good is served by relaxing the conception of Christian doctrine to include writers whose principles are merely analogous to it.

St. Joseph's College, Collegeville, Ind. FRANCIS X. DUGGAN.

RAMUS: METHOD, AND THE DECAY OF DIALOGUE. By Walter J. Ong, S.J. Cambridge, Mass.: Harvard University Press, 1958. Pp. 408. $10.00.

RAMUS AND TALON INVENTORY. By Walter J. Ong, S.J. Cambridge, Mass.: Harvard University Press, 1958. Pp. 558. $10.00.

These rewarding volumes provide overwhelming evidence of the immense vogue for Ramus and Ramism throughout Europe during the sixteenth and seventeenth centuries. Father Ong lists more than 750 editions or adaptations of works by Ramus or his collaborator, Omer Talon, including nearly 250 editions of Ramus' *Dialectic*. At the same time, through a careful survey of Ramist controversies, he is able to list the works of about 400 writers concerned with Ramism in one way or another. There can be no doubt that the handbooks of logic and rhetoric by Ramus and his followers enjoyed a popularity even greater than we had been led to suspect by earlier scholars. What were the causes of this remarkable reception? And what were the effects upon European culture? The answers to these questions form the subject of Father Ong's patient, witty, and decisive study of *Method, and the Decay of Dialogue*.

The popularity of Ramus lies in the fact that he wrote a series of textbooks (for students of our high-school age, or a little younger), which satisfied a long-developing, practical, purely pedagogical need. As the fifteenth century closed, "scholastic logic was dying of the frustration attendant upon its failure to develop a symbolic system adequate to its ambition and the promise of its initial development" (p. 74). The difficulty of dealing adequately with this demanding logic was increased by the fact that it was usually taught by young masters, often in their late teens, to boys in their early teens, or even younger. As a result, throughout the later Middle Ages, "the intellectual heritage was constantly being beaten down into simplified form" to meet the needs of the classroom (p. 136). At the Renaissance, "with the weakening of the universities and the strengthening of the extraprofessional control of education . . . a logic which had been unconsciously adapted to a youthful audience became a logic consciously made easy for youth" (p. 140). Such were the works of Ramus, for which Father Ong can find no claim to intellectual distinction.

Those who have been led to regard Ramus as a potent intellectual force would do well to ponder some of Father Ong's more derogatory judgments. "Ramus' critique of Aristotle labors in a cascade of invective, and is extremely difficult to summarize in a way which does justice to the confusion of his thought" (p. 174). ". . . this position cannot be put on a coherent theoretical basis and is sustained by a kind of double talk which drove Ramus' opponents frantic" (p. 204). "His management of the syllogism is devoid of any valuable

and effective insights" (p. 186). ". . . what Ramus retains of this formal logic is not real skill as a logician but only a blind drive toward a quantified approach to mental activity" (p. 188). As for the Ramist account of universals: "It ends where it started, indecisive and neuter, aware of the existence of a problem, but understandably quite unable to state it effectively in terms which both do it justice and are suitable for teen-aged minds" (p. 209). Those last words sum up the problem: in his effort to cut a way out of the difficulties of late scholasticism, Ramus devised a textbook method in which all intellectual order appeared to be "reducible by rough analogy to some simple spatial arrangement or rearrangement of intellectual atoms" (p. 247).

We may wonder whether so faulty a system, aimed at juvenile minds, could have achieved some of the powerful effects that have been claimed for it, as in Miss Tuve's contention that Ramist logic had an important influence in the development of English metaphysical poetry. Father Ong (pp. 286-7) accepts Miss Tuve's argument to this extent: "Ramism assimilated logic to imagery and imagery to logic by reducing intelligence itself, more or less unconsciously, in terms of rather exclusively visual, spatial analogies." Consequently, the "brusque, spatial maneuvers" of Ramist method "have some affinity with the harsh contrasts and grotesquerie of metaphysical poetry." He then proceeds to show, in one of the many brilliant perceptions that mark his study, how none of this can hope to explain the essence of such poetry, for underlying this superficial similarity he finds "a divergence extremely profound." "The overtones of 'real' or colloquial speech, that is, of *dialogue* between persons, which sixteenth- and seventeenth-century poetry specializes in, give it its characteristic excellence. Ramist rhetoric, on the other hand, is not a dialogue rhetoric at all, and Ramist dialectic has lost all sense of Socratic dialogue and even most sense of scholastic dispute." Clearly, the poetry of a Donne or a Herbert could not exist in such a voiceless world.

The importance of Ramism, then, in Father Ong's view, does not lie in the realm of high intellectual achievement; Ramism is rather a dramatic episode in the history of education, a symptom of the disintegration of scholasticism, and of the approaching reorientation of the intellectual world in spatial terms. The textbooks of Ramus and Talon helped to condition young minds for the acceptance of a reorientation; this is the full extent of their significance. Father Ong explores Ramism in a way that throws light on all aspects of educational method from the Middle Ages down through the seventeenth century. The student of philosophy and literature needs to know all this, though the result will be, I think, a conviction that Ramus and his sort could never have exerted a profound effect upon any great creative mind.

The *Inventory*, no doubt for reasons of economy, has been published from typescript in photo-offset. There is certainly no reason to object to this method of presentation, which holds a great potential for the future of scholarly publication. It is a pity, though, that the Harvard Press should have

produced so poor an example of this kind of work. The letters are too small and thin, the page-impressions are irregular, and the pages are badly proportioned. A book of this importance deserves a better production.

Yale University. LOUIS L. MARTZ.

MENTAL DISCIPLINE IN MODERN EDUCATION. By Walter B. Kolesnik. Madison, Wisconsin: The University of Wisconsin Press, 1958. Pp. x, 231. $3.50.

Since the time of Plato, mental discipline has held a dignified and influential status in educational theory and practice. In the long view of educational history, however, the first half of the twentieth century will be epochal because during that time the idea of mental discipline was subjected to intense scrutiny and the resulting controversies, frequently heated, tended to obscure the meaning of the term and the nature of the issue involved with the result that mental discipline has become one of the most misunderstood aspects of modern American education. At the present time this issue has assumed a new significance and has far-reaching implications owing to the current concern regarding the quality and effectiveness of American education, particularly at the secondary school level.

This book, the outgrowth of the author's doctoral dissertation, analyzes the role played by mental discipline in American education during the first half of the twentieth century in order to ascertain just what the problem is, what practices are involved and likewise to evaluate some of the solutions which have been proposed. The changes which have taken place in the meaning of the term "mental discipline" have been described; the present meanings, evaluated; the implications with regard to curriculum planning and practices, discussed. A clear overview of the whole problem has been presented. In order to organize the many facets of the problem the author has cut across the lines of educational psychology, the history and philosophy of education, and curriculum theory with the result that data hitherto fragmented and widely scattered have been integrated, analyzed, compared and evaluated. The book is intended to be explanatory in nature rather than argumentative and the author has succeeded admirably in attaining this objective.

In format the book is divided into eight chapters supplemented by twenty-three pages of explanatory notes. Fifteen pages are devoted to an extensive bibliography of related literature. The contents of the eight chapters are arranged logically and have been presented in concise fashion. The author has noted the impossibility of considering thoroughly every aspect of the problem and has justified satisfactorily the selection of the phases considered. The opening chapters contain a discussion of the term "mental discipline" and a review of the historical backgrounds of the problem. Clear-cut distinctions have been made with respect to the meanings and usage of the terms "mental discipline," "formal discipline" and "transfer of training" since failure to make such distinctions in the past has resulted in serious errors. These distinctions have been maintained consistently throughout the book. The

third and fourth chapters present a consideration of the experimental work in the field of transfer which played an important role in the controversies concerning mental discipline and an account of the varied reactions to this experimental evidence. Particular stress has been laid on Thorndike's experiments, which constituted the turning point in modern learning theory and led to the inauguration of many of the present-day educational practices which are now the subject of adverse criticism. The reactions of Judd, Orata, Castiello and many others have been described adequately and fairly. Since those who reject the idea of mental discipline usually maintain that it is based upon faculty psychology which, they insist, is now obsolete, the fifth chapter has been devoted to an evaluation of the various theories of faculty. A noteworthy feature of this chapter is the definite and clear expression of the Scholastic notion of faculty. In the sixth and seventh chapters the discussion of the relationship of the idea of mental discipline to liberal education and to democracy helps to point up the specific nature of the question and to clarify the meaning and applications of mental discipline in modern education. For the purpose of demonstrating that the idea of mental discipline is still very much alive, the author has concluded his work with an analysis and comparison of three viewpoints of mental discipline as an aim of modern education and a description of the manner in which it may be implemented in the modern school. The viewpoints are those expressed by the Harvard Committee on General Education in a Free Society, by Robert Hutchins and by John Dewey. In spite of the reviewer's obvious admiration for this book, he would be inclined to dispute vigorously the inclusion of Dewey among the modern educators who agree that mental discipline constitutes, even in a remote way, an aim of education. Dewey's stress on social efficiency and practical utility as the aims of education rules out any real consideration of mental discipline as an aim of education.

This book presents a survey which is comprehensive in scope and thorough in treatment. The presentation of the materials is objective, concise and orderly. The style of writing is clear and scholarly. The book is timely and while it presents no ready-made solutions to the problem, it has a practical value for all educators. It should be required reading in courses in educational psychology and in the philosophy of education.

Fordham University. WILLIAM A. KELLY.

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